

## DOCUMENT RESUME

ED 331 862

TM 016 390

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TITLE Mathematics Assessment Questionnaire: A Survey of  
Thoughts and Feelings for Students in Grades 7-9.  
Technical Report Supplement #1. Research Edition.  
INSTITUTION City Univ. of New York, N.Y. Center for Advanced  
Study in Education.  
SPONS AGENCY Aaron Diamond Foundation, Inc., New York, NY.; Ford  
Foundation, New York, N.Y.  
PUB DATE Jun 91  
NOTE 83p.  
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC04 Plus Postage.  
DESCRIPTORS \*Criterion Referenced Tests; Mathematics Anxiety;  
\*Mathematics Tests; \*Questionnaires; Secondary  
Education; \*Secondary School Students; \*Student  
Attitudes; Surveys; Test Construction; \*Word Problems  
(Mathematics)  
IDENTIFIERS \*Mathematics Assessment Questionnaire

## ABSTRACT

This supplement to the "Technical Report for the Mathematics Assessment Questionnaire" describes methods for examining student responses to the questionnaire and focuses on the data for criterion-referenced-test (CRT) type scores. The Mathematics Assessment Questionnaire (MAQ) was developed to provide information about students in grades 7 through 9 that is complementary to that provided by teacher assessments or standardized tests of mathematical concepts and principles. The MAQ samples students' thoughts and feelings in relation to doing and learning a particular process of mathematics--solving mathematical word problems. The responses of 1,737 students are discussed on an individual student level and aggregated at the class level (60 classes). Student responses were basically examined at statement level and at the three item cluster level using CRT-type response categories. The final section of the document provides information about how and why several items of the MAQ were rewritten. Twelve tables present data about student responses, and one figure illustrates domain specifications for the project. Three appendices provide tabulated data to supplement the discussion. (SLD)

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TECHNICAL REPORT SUPPLEMENT #1

MATHEMATICS ASSESSMENT QUESTIONNAIRE:  
A SURVEY OF THOUGHTS AND FEELINGS  
FOR STUDENTS IN GRADES 7 - 9

Deborah Hecht  
Carol Kehr Tittle

Research Edition



Center for Advanced Study in Education

The Graduate School and University Center  
of the City University of New York

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June 1991

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#### ACKNOWLEDGEMENTS

- . The mathematics coordinators, principals, teachers, and students who assisted in the development and administration of the Mathematics Assessment Questionnaire -- in Brooklyn, the Bronx, and Staten Island NYC Public Schools;
- . The research assistance of Amy E. Schmidt, doctoral student in the Ph.D. Program in Educational Psychology;
- . The major support provided by the Aaron Diamond Foundation. Additional support provided by the Ford Foundation;

**MATHEMATICS ASSESSMENT QUESTIONNAIRE  
TECHNICAL REPORT SUPPLEMENT #1**

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**MATHEMATICS ASSESSMENT QUESTIONNAIRE**  
**TECHNICAL REPORT SUPPLEMENT #1**

This document is a supplement to the Technical Report for the Mathematics Assessment Questionnaire. A brief description of the Mathematics Assessment Questionnaire is provided, which includes a discussion of its general use and purpose. Further details can be found in the Manual for Users (Tittle & Hecht, 1990) and the Technical Report (Hecht & Tittle, 1990). The present document describes methods for examining student responses to the questionnaire and focuses on the data for CRT-type scores. Responses of approximately 1700 students are discussed on an individual student level and aggregated at the class level (within 60 classes). The final section of this document provides information about how and why several items of the Mathematics Assessment Questionnaire have been rewritten.

**DESCRIPTION AND PURPOSE OF THE MATHEMATICS ASSESSMENT  
QUESTIONNAIRE: TEACHER PLANNING AND CLASSROOM USE**

The Mathematics Assessment Questionnaire: A survey of thoughts and feelings, for students in grades 7-9, was developed to provide information which is complementary to that provided by teacher assessments or standardized tests of mathematical concepts and procedures. The Mathematics Assessment Questionnaire, MAQ, is designed to sample students' thoughts and feelings in relation to doing and learning a particular process of mathematics -- solving mathematical word problems. The facets or dimensions used to design the questionnaire are:

1. Mathematical content,
2. Psychological construct, and
3. Classroom-related learning or activity setting.

The first facet, the mathematical content, is the same in all statements--mathematical word problems. The second facet, the psychological construct, focuses upon students' thoughts and feelings. It includes metacognitive activities; self-regulatory activities; affective beliefs of the utility or value of mathematical word problems, interest in word problems, confidence or expectation of success, and anxiety or concern about doing word problems; the motivations of internal learning goals and external performance goals; and the attributions of beliefs about the causes or reasons for one's success or failure. The affective beliefs, motivations and attributions are assessed by three-item sets of statements within each of the three

activity settings<sup>1</sup>. The third facet, the activity setting, includes three mathematics classroom-related situations during which students engage in problem-solving: during classroom instruction, while working with other students in a group, and while doing homework. Figure 1 depicts the psychological construct by activity setting design used for the MAQ.

The Mathematics Assessment Questionnaire includes 161 statements. Except for the Metacognitive statements, students rate how true each statement is for them using a five point scale from 1 VERY TRUE to 5 NOT AT ALL TRUE. For the Metacognitive statements, response categories are YES, MAYBE and NO.

The psychological constructs and classroom activity settings were selected to be relevant and useful for mathematics classrooms from both a research and a theoretical perspective. The MAQ is based on the view that a teacher's role is concerned with understanding and supporting or facilitating change in students' beliefs and thinking in a specific context, that of mathematical problem-solving. Embedding the assessment of student beliefs in the context of mathematics classroom activities is an attempt to directly link students' beliefs to teachers' thinking about instructional planning. Both the MAQ statements and methods of reporting students' responses were developed with the assistance of teachers and teacher educators.

#### METHODS FOR EXAMINING STUDENT RESPONSES

The statements of the Mathematics Assessment Questionnaire were written to provide information for classroom instructional planning. They were not written to provide normative data, but rather to help teachers to better understand their students, to develop instructional plans, and to use the statements directly with students. Different methods have been developed to help identify students who may need additional instructional work.

Student responses can be examined in two basic ways:

Level 1. Statement-level

Level 2. Three item cluster-level using CRT-type response categories. The CRT-type response categories are only applicable to the affective

<sup>1</sup> There is one exception -- Internal Learning Goals within the Homework activity setting has two items. A third item has been written and is discussed in the section titled Revision of the Mathematics Assessment Questionnaire.

**Figure 1**  
Specifications for the Mathematics Assessment Questionnaire:  
Number of Statements for Psychological Constructs  
and Activity Settings

| PSYCHOLOGICAL CONSTRUCT                                           | ACTIVITY SETTING                                                          |                                |                   |
|-------------------------------------------------------------------|---------------------------------------------------------------------------|--------------------------------|-------------------|
|                                                                   | During Class<br>(Teacher-led)                                             | Working With<br>Other Students | Doing<br>Homework |
| Metacognitive: Solving a math problem                             | 20<br>METACOGNITIVE<br>STATEMENTS<br>LINKED TO ONE<br>NON-ROUTINE PROBLEM |                                |                   |
| .before you begin, planning,<br>defining objective, setting goals |                                                                           |                                |                   |
| .as you work, monitoring progress,<br>keeping track               |                                                                           |                                |                   |
| .after you finish, evaluating,<br>judging what done               |                                                                           |                                |                   |
| .strategies employed                                              |                                                                           |                                |                   |
| Self-regulation                                                   |                                                                           |                                |                   |
| .before beginning, planning,<br>defining objective, setting goals | 6                                                                         | 7                              | 3                 |
| .during the activity,<br>monitoring progress, keeping track       | 8                                                                         | 8                              | 3                 |
| .after the activity, evaluation,<br>judging what done             | 5                                                                         | 8                              | 3                 |

| PSYCHOLOGICAL CONSTRUCT             | ACTIVITY SETTING              |                                |                   |
|-------------------------------------|-------------------------------|--------------------------------|-------------------|
|                                     | During Class<br>(Teacher-led) | Working With<br>Other Students | Doing<br>Homework |
| Affective Beliefs                   |                               |                                |                   |
| .utility, value of math             | 3                             | 3                              | 3                 |
| .interests                          | 3                             | 3                              | 3                 |
| .expectancies of success/confidence | 3                             | 3                              | 3                 |
| .anxiety                            | 3                             | 3                              | 3                 |
| Motivations                         |                               |                                |                   |
| .internal learning goals            | 3                             | 3                              | 3                 |
| .external performance goals         | 3                             | 3                              | 3                 |
| Attributions                        |                               |                                |                   |
| .internal stable controllable       | 3                             | 3                              | 3                 |
| .internal stable uncontrollable     | 3                             | 3                              | 3                 |
| .external stable uncontrollable     | 3                             | 3                              | 3                 |
| .unknown control                    | 3                             | 3                              | 3                 |

belief, motivation and attribution statements. Responses to all three items within a cluster are used to indicate possible need for follow-up instructional work.

#### **LEVEL 1. Statement-Level Responses: All Statements**

Responses of either an individual student or a group of students can be examined at the individual statement level. That is, responses to items are not grouped or summed. For example, an individual student's actual response to statement number 10 in the During Class Activity Setting can be examined. Similarly, the responses of the class to the statement can be summarized in frequencies or percentages. The focus is to examine responses to individual statements by individuals or by the class.

This method can be used with all of the items. However, it is the only approach used with the Metacognitive and Self-Regulatory statements. It is not justifiable to summarize the responses to these statements since the characteristics of both the statements and of student responses to the statements do not suggest a simple structure. This conclusion is supported by statistical analyses of the statements and student responses which indicate that there is not a single factor or dimension underlying the Metacognitive or Self-Regulatory statements (see Chapter IV of the Technical Report). Furthermore, these statements are closely linked to actual classroom related activities. A judgement concerning the appropriate use of self-regulatory behaviors is therefore situationally dependent upon the classroom-related activity. Examples of individual and class responses as well as uses for the responses are given in Chapter IV of the Manual for Users.

#### **LEVEL 2. Statement Clusters for CRT-Type Scores: Affective, Motivational and Attributional Statements**

Three statements were written to assess each affective belief, motivation and attribution construct within each setting (see Figure 1). Student responses to these statements can be summed, or otherwise combined to provide a "cluster-score." Thus, at Level 2, the focus is upon the three-item clusters, not individual items.<sup>2</sup>

Criterion or objective referenced scores have been useful in achievement testing. Such scores typically have

<sup>2</sup> Although these three-item clusters can be examined in two ways -- a summed score based on the 1-5 ratings, or a CRT-Type approach, only the latter is discussed in this report. Analyses based upon the statement summed scores are in the Technical Report and the Manual for Users.

direct meaning for instructional planning because:

1. they are referenced to smaller units of statements or questions, typically from 3-6; and
2. a standard or cutoff score is set indicating mastery or non-mastery in the achievement test context, where "non-mastery" suggests a need for additional information to decide if further classroom instruction is appropriate.

In the context of the Mathematics Assessment Questionnaire a similar strategy has been developed for the three-item clusters of the affective beliefs, motivations and attributions in each setting. Criterion-referenced test-like scores are created for students on each of the 3-statement clusters. These scores indicate if a student has responded to at least two of the three statements in a cluster in a manner indicating the need for follow-up by the teacher. On any single item, the student has to select one of the two most extreme response options to indicate need. These CRT-type scores have direct meaning, as opposed to the use of summed scores on the five point rating scales. Summed scores on the five point rating scale can range from 3 to 15, and students with the same score can have different response patterns.

For the affective beliefs, indicators of need are low Value, low Interest, low Confidence and high Anxiety. For the motivations, being motivated by External Performance Goals and not motivated by Internal Learning Goals are indicators of need. For the attributions, one indicator of need is success or failure which is NOT attributed to causes which are Internal Stable Controllable. Other indicators of need for the attributions include success or failure attributed to causes which are External Stable Uncontrollable or a feeling of Unknown Control. A list of item numbers for each category and the direction in which they are counted to determine if they meet the criteria of need are presented in Table 1.

An indicator of need is not created for the attribution construct Internal Stable Uncontrollable. Students who attribute success or failure to something which is uncontrollable, such as ability, would be identified as possibly needing additional instructional work. However, when used with items dealing with successful problem solving the need indicator can provide ambiguous results. An example is statement number 38 in the Working With Other Students setting. This Internal Stable Uncontrollable statement is "If I can solve a word problem with other students, it is because we have enough ability." Students who respond VERY TRUE or TRUE indicate a possible need for

Table 1

Statement Numbers, Scale Response Numbers for Indicators, and  
Interpretation of Diagnostic Indicators for Affective Belief,  
Motivation and Attribution Categories

| Psychological Construct        | Activity Setting   |                  |                 | Interpretation     |
|--------------------------------|--------------------|------------------|-----------------|--------------------|
|                                | During Class       | Working W/Others | Homework        |                    |
| Value                          | 26(R) <sup>a</sup> | 32               | 12(R)           | 4 or 5             |
|                                | 28                 | 44               | 20              | indicates          |
|                                | 34                 | 46(R)            | 39(R)           | low value          |
| Interest                       | 24                 | 30               | 18              | 4 or 5             |
|                                | 44(R)              | 36               | 28              | indicates          |
|                                | 49                 | 40(R)            | 34(R)           | low interest       |
| Confidence                     | 20                 | 24               | 13(R)           | 4 or 5             |
|                                | 31(R)              | 27(R)            | 22              | indicates          |
|                                | 48(R)              | 48               | 35(R)           | low confidence     |
| Anxiety                        | 27                 | 25               | 19              | 1 or 2             |
|                                | 35(R)              | 31(R)            | 26(R)           | indicates          |
|                                | 39                 | 51               | 36(R)           | high anxiety       |
| Internal Learning Goals        | 30                 | 29               | 15 <sup>b</sup> | 4 or 5             |
|                                | 32                 | 33               | 23              | indicates not      |
|                                | 42                 | 39               | 31              | inter. motivated   |
| External Performance Goals     | 25                 | 37               | 14              | 1 or 2             |
|                                | 36                 | 43               | 29              | indicates          |
|                                | 40                 | 53               | 33              | exter. motivated   |
| Internal Stable Controllable   | 43                 | 34               | 17              | 4 or 5             |
|                                | 45                 | 41               | 25              | indicates internal |
|                                | 47                 | 49               | 37              | stable uncontrol   |
| External Stable Uncontrollable | 23                 | 35               | 21              | 1 or 2             |
|                                | 29                 | 45               | 27              | indicates external |
|                                | 46                 | 50               | 32              | stable uncontrol.  |

Table 1 (continued)

| Psychological Construct | Activity Setting |                  |          |                   |
|-------------------------|------------------|------------------|----------|-------------------|
|                         | During Class     | Working W/Others | Homework | Interpretation    |
| Unknown                 | 21               | 28               | 11       | 1 or 2            |
| Control                 | 33               | 42               | 24       | indicates unknown |
|                         | 38               | 47               | 30       | sense of control. |

<sup>a</sup> Where an (R) appears, the reverse end of a scale is counted: e.g., for Confidence a 4 or 5 indicates low confidence and the (R) next to number 31 indicates that the reverse end, a 1 or 2, is counted as an indicator of low confidence.

<sup>b</sup> In analyses, item 15 in the Homework activity setting is not included due to inconsistencies with other items in the cluster. This item was revised (see the Revision section).

follow-up instructional work. In the 1988 study, 53% of the 1737 students who participated responded to the Internal Stable Uncontrollable setting in a way which would contribute to a CRT-type score. These students are attributing their success to something which is uncontrollable -- ability. Over half the sample felt this was an appropriate response. However, to identify these students as needing follow-up work is questionable. Furthermore, a small scale study with two classes suggests that if failure rather than success is examined, the percentage of students identified as needing follow-up work decreases. (This small-scale study is discussed later in the section on revisions and in Appendix I.)

The procedures for creating the CRT-type scores for a three-item cluster are as follows:

- 1) Responses to each item are dichotomized: If students select either of the two extreme response options which indicate need in that area, they receive a "1," otherwise a "0." (These scores are referred to as the dichotomized statement scores.)

2) The number of 1's is summed across the three statement cluster.

3) If this sum equals 2 or 3, students are identified as in need of attention in that area.

An example of how a CRT-type score is computed follows for the construct of Anxiety in the Homework setting.

Suppose a student responds to the three Anxiety items:

ANXIETY: (\* is the student's response)

|                                                                                       | VERY<br>TRUE | TRUE | SORT<br>OF<br>TRUE | NOT<br>VERY<br>TRUE | NOT AT<br>ALL<br>TRUE |
|---------------------------------------------------------------------------------------|--------------|------|--------------------|---------------------|-----------------------|
| 19. I feel nervous when<br>I think about doing<br>hard word problems for<br>homework. |              | *    |                    |                     |                       |
| 26. I feel relaxed when<br>I am doing math word<br>problems at home.                  |              |      |                    |                     | *                     |
| 36. Doing word problems<br>for homework does not<br>make me nervous.                  |              |      | *                  |                     |                       |

The student's responses are then recoded:

item 19 - student reports feeling anxious as indicated by a response in one of the two extreme categories. (a VERY TRUE response); - the student receives a "1" for this response -- need is indicated

item 26 - the student reports feeling anxious as reported in one of the two extreme categories. (a NOT AT ALL TRUE response) - student receives a "1" for this response -- need is indicated

item 36 - the student does not report feeling anxious as indicated by marking one of the two extreme categories. (a TRUE response) - student receives a "0" for this response -- need is not indicated. To receive a "1" the student would have had to respond NOT VERY TRUE or NOT AT ALL TRUE.

The "1's" are summed. The total of 2 falls within the cutoff (two or three responses indicating need). Therefore, this student is identified for follow-up work by the teacher to determine whether instructional activities are needed in this area.

#### ANALYSES OF INDIVIDUAL STUDENT RESPONSES: CRT-TYPE SCORES

In the fall of 1988, responses to the Mathematics Assessment Questionnaire were collected from 1737 students in grades seven, eight, and nine at eight New York City public schools. The criteria for selecting students and classes were that students read at the seventh-grade level and that the classes were not at the very top (gifted) or very bottom (low remedial) of the mathematics sections in the school. The MAQ booklets were administered during one 40 minute class period with project staff present. Forty-four percent of the students were male, 56% female. The students ranged in age from 11 to 16 years, with the majority of students (93%) between 12 and 14 years of age. Self-reported ethnicity was: 8% Asian, 22% Black, 22% Hispanic, 43% White, 13% Other, and 2% not responding. Further details concerning this sample can be found in the Technical Report.

In this section several analyses are presented that focus on the CRT-type scores. First there is a discussion of data basic to the CRT-type scores -- the dichotomized scores for each statement in the affective, motivational and attributional categories. Then reliabilities, correlations and other data are presented for the CRT-type scores.

#### Dichotomized Statement-Level - Frequencies and Percentages of Individual Student Responses

As discussed earlier, the first step in calculating the CRT-type need scores is to dichotomize students' responses to individual statements. Thus, for each statement, a student is assigned a "1" (response contributes to CRT-type score) or "0" (response does not contribute to CRT-type score). For all three items within a cluster, a student can respond to between 0 (no evidence of further work needed) and 3 (indicator of additional work needed) items in a way to suggest the need for follow-up instruction.

Appendix II, Table 1, presents, by statement, the number and percentage of students with dichotomized statement scores which contribute to the CRT-type score. In other words, for each statement, the number of students who received a score of 1 is indicated. Although presented for individual statements, these data are not intended for interpretation of need. The interpretation of need would be

based upon the CRT-type scores, a summary of the dichotomized statement-level scores.

In the During Class setting, the statement which identified the greatest number of students as needing additional work (73% of the students) is statement 36 "I pay attention when my teacher explains word problems if I know I will have a test on them." This statement, written to examine External Performance Goals, is keyed so that a response of VERY TRUE or TRUE indicates a possible need for additional work. The student is responding to an external motivator -- the test. Need is indicated for 46% of the students on statement 40, "I volunteer to do a word problem on the board if I think it will help my grade."<sup>3</sup> Forty-four percent of the students indicate need to statement 23, "If I understand the word problems my teacher does on the board, it is because I have a good teacher." The students responded VERY TRUE or TRUE, suggesting they attribute their success to an external cause -- the teacher.

The examination of the individual items within the Working With Other Students setting reveals that 50% of the students responded to statement 49 in a way to contribute to the CRT-type score, an indicator for possible follow-up activities. This Internal Stable Controllable statement, "If I cannot solve a word problem working with other students, it is because we were careless," is scored such that a response of NOT VERY TRUE or NOT AT ALL TRUE indicates need. These students are not attributing their failure to something which is controllable, such as their lack of effort or carelessness.

In the Homework activity setting item 29, "I would do challenging math word problems for homework if I could get a better grade," had the greatest number of students with a dichotomized score which contributes to the CRT-type need indicator. Forty-nine percent of the students responded VERY TRUE or TRUE to this External Performance Goal statement. This suggests that they are motivated by external factors such as getting a better grade.

Appendix II also presents the number and percentage of students indicating need on each individual item for follow-up work for grades seven, eight, and nine separately. As Tables 2 to 4 in Appendix II indicate, the patterns are similar across all three grades.

<sup>3</sup> Both items were dropped when the Mathematics Assessment Questionnaire was revised because of the low reliability of the External Performance Goals - During Class three item cluster. (See section, Revision of Mathematics Assessment Questionnaire).

### **Average Number of Dichotomized Statements for Each Three-Item Cluster**

Table 2 presents the average number of items within each three-item cluster to which students responded in a way indicating a possible need for follow-up instruction. For example, students responded to approximately one out of the three Interest statements in the During Class setting (mean = .94) in a way to indicate need for further instructional work. In Table 2, need is indicated on the Interest statements across all three settings, and to the greatest degree in the Homework setting (mean = 1.2). The area where students reported least need across all three settings is that of Confidence (mean = .4 in all settings).

### **Reliabilities of CRT-Type Scores**

Table 3 presents two coefficient alpha reliability estimates for the three-item clusters for the affective beliefs, motivations and attributions. Alpha 1 is based on the original 1 to 5 ratings for each statement. Alpha 2 is the reliability estimate for the CRT-type score, based upon the dichotomized indicators - Need versus NO Need used to calculate the CRT-type scores. The CRT-type score reliabilities range from .18 to .70, the original summed score reliabilities range from .20 to .74. Overall, the reliability estimates based upon the dichotomized statement level scores tend to be somewhat lower than the reliability estimates based upon the raw, original scores.

### **Correlations Among CRT-Type scores**

The CRT-type scores are calculated by summing the dichotomized statement-level scores. These values can range from 0 to 3. Spearman's Rho was used to calculate the correlations among the CRT-type scores. These are presented in Tables 4, 5 and 6 for the During Class, Working With Other Students and Homework activity settings, respectively. All significance levels are based upon a one-tailed test.

In the During Class setting the strongest correlation, .37, is between Interest (e.g., I enjoy trying to answer the math word problems my teacher asks in class) and Internal Learning Goals (I volunteer to answer questions about word problems in math class because it helps me understand math). This correlation indicates a modest relationship between student responses suggesting a need for follow-up in Interest (lack of interest) and Internal Learning Goals (lack of internal motivations). Other correlations greater than or equal to .30 are .34 between Internal Learning Goals (lack of internal motivations) and Internal Stable Controllable (attributions for success not attributed to controllable causes); .33 between Anxiety and Unknown

Table 2

Mean Number of Items to Which Students Responded in a Way to  
Indicate Need For Follow-up Instructional Work

(N=1737)

| Psychological Construct      | Activity Setting |                     |                   |
|------------------------------|------------------|---------------------|-------------------|
|                              | During Class     | Working With Others | Doing Homework    |
| Value                        |                  |                     |                   |
| M                            | .622             | .880                | .634              |
| SD                           | .781             | .884                | .791              |
| Missing <sup>a</sup>         | 51               | 71                  | 66                |
| Interest                     |                  |                     |                   |
| M                            | .943             | .740                | 1.216             |
| SD                           | .890             | .857                | 1.121             |
| Missing                      | 49               | 76                  | 47                |
| Confidence                   |                  |                     |                   |
| M                            | .459             | .466                | .406              |
| SD                           | .692             | .683                | .693              |
| Missing                      | 49               | 64                  | 42                |
| Anxiety                      |                  |                     |                   |
| M                            | .826             | .567                | .623              |
| SD                           | .927             | .793                | .790              |
| Missing                      | 54               | 70                  | 48                |
| Internal Learning Goals      |                  |                     |                   |
| M                            | .639             | .575                | .830 <sup>b</sup> |
| SD                           | .856             | .869                | 1.184             |
| Missing                      | 32               | 72                  | 37                |
| External Performance Goals   |                  |                     |                   |
| M                            | 1.323            | .708                | 1.266             |
| SD                           | .784             | .855                | 1.022             |
| Missing                      | 81               | 63                  | 62                |
| Internal Stable Controllable |                  |                     |                   |
| M                            | .474             | 1.304               | .460              |
| SD                           | .758             | 1.078               | .757              |
| Missing                      | 44               | 78                  | 69                |

Table 2 (Continued)

| Psychological Construct        | Activity Setting |                     |                |
|--------------------------------|------------------|---------------------|----------------|
|                                | During Class     | Working With Others | Doing Homework |
| External Stable Uncontrollable |                  |                     |                |
| M                              | .841             | .595                | .665           |
| SD                             | .865             | .824                | .873           |
| Missing                        | 59               | 61                  | 63             |
| Unknown Control                |                  |                     |                |
| M                              | .464             | .523                | .533           |
| SD                             | .771             | .791                | .839           |
| Missing                        | 83               | 103                 | 57             |

<sup>a</sup> Missing indicates number of students who left at least one of the three items blank.

<sup>b</sup> Two item cluster

Table 3

Coefficient Alpha Reliabilities of Responses to Three Item  
Clusters of Affective Beliefs, Motivations and Attributions  
Based on Original Scores (Alpha1) and CRT-type Scores  
(Alpha2)

| Psychological<br>Construct   | Activity Setting            |                                            |                               |
|------------------------------|-----------------------------|--------------------------------------------|-------------------------------|
|                              | During<br>Class<br>(N=1432) | Working with<br>Other Students<br>(N=1382) | Doing<br>Homework<br>(N=1430) |
| Value <sup>a</sup>           |                             |                                            |                               |
| Items                        | (26) 28 34                  | 32 44 (46)                                 | (12) 20 (39) <sup>a</sup>     |
| Alpha1 (Raw)                 | .500                        | .394                                       | .483                          |
| Alpha2 (CRT)                 | .363                        | .310                                       | .317                          |
| Interest                     |                             |                                            |                               |
| Items                        | 24 (44) 49                  | 30 36 (40)                                 | 18 (34) 28                    |
| Alpha1 (Raw)                 | .335                        | .487                                       | .725                          |
| Alpha2 (CRT)                 | .272                        | .401                                       | .657                          |
| Confidence                   |                             |                                            |                               |
| Items                        | 20 (31) (48)                | 24 (27) 48                                 | (13) 22 (35)                  |
| Alpha1 (Raw)                 | .548                        | .412                                       | .611                          |
| Alpha2 (CRT)                 | .300                        | .249                                       | .411                          |
| Anxiety                      |                             |                                            |                               |
| Items                        | (27) 35 (39)                | (25) 31 (51)                               | (19) 26 36                    |
| Alpha1 (Raw)                 | .576                        | .520                                       | .451                          |
| Alpha2 (CRT)                 | .480                        | .413                                       | .330                          |
| Internal Learning Goals      |                             |                                            |                               |
| Items                        | 30 32 43                    | 29 33 39                                   | 31 23 <sup>b</sup>            |
| Alpha1 (Raw)                 | .710                        | .698                                       | .737                          |
| Alpha2 (CRT)                 | .527                        | .593                                       | .695                          |
| External Performance Goals   |                             |                                            |                               |
| Items                        | 25 36 40                    | 37 43 53                                   | 14 33 29                      |
| Alpha1 (Raw)                 | .203                        | .532                                       | .543                          |
| Alpha2 (CRT)                 | .175                        | .472                                       | .477                          |
| Internal Stable Controllable |                             |                                            |                               |
| Items                        | 43 45 47                    | 34 41 49                                   | 17 25 37                      |
| Alpha1 (Raw)                 | .620                        | .610                                       | .605                          |
| Alpha2 (CRT)                 | .474                        | .575                                       | .505                          |

Table 3 (continued)

|                                | Activity Setting         |    |    |                                         |    |    |                            |    |    |
|--------------------------------|--------------------------|----|----|-----------------------------------------|----|----|----------------------------|----|----|
| Psychological Construct        | During Class<br>(N=1432) |    |    | Working With Other Students<br>(N=1382) |    |    | Doing Homework<br>(N=1430) |    |    |
| <hr/>                          |                          |    |    |                                         |    |    |                            |    |    |
| External Stable Uncontrollable |                          |    |    |                                         |    |    |                            |    |    |
| Items                          | 23                       | 29 | 46 | 35                                      | 50 | 45 | 21                         | 32 | 27 |
| Alpha1 (Raw)                   | .418                     |    |    | .613                                    |    |    | .603                       |    |    |
| Alpha2 (CRT)                   | .365                     |    |    | .482                                    |    |    | .513                       |    |    |
| <hr/>                          |                          |    |    |                                         |    |    |                            |    |    |
| Unknown Control                |                          |    |    |                                         |    |    |                            |    |    |
| Items                          | 21                       | 33 | 38 | 28                                      | 42 | 47 | 11                         | 30 | 24 |
| Alpha1 (Raw)                   | .683                     |    |    | .588                                    |    |    | .661                       |    |    |
| Alpha2 (CRT)                   | .522                     |    |    | .472                                    |    |    | .571                       |    |    |

Note. Alpha1= raw scores. Alpha2= CRT Version.  
The alphas differ slightly from those reported in the Technical Report due to a slightly larger sample size used for these calculations. N for Technical Report = 1358, 1270, and 1405 respectively.

<sup>a</sup> Coding of items in parentheses is reversed.

<sup>b</sup> Item 15 was dropped from the analyses due to inconsistent results. Inclusion of item 15 with logical keying for Raw (Alpha1)  $r_{tt} = .386$ , with statistical keying  $r_{tt} = .446$ .

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Table 4

Descriptives and Correlations Among the MAQ-Scale Scores  
For All Students in the During Class Setting

| Psychological Constructs |                               |                               |                               |                              |                               |                               |                               |                              |
|--------------------------|-------------------------------|-------------------------------|-------------------------------|------------------------------|-------------------------------|-------------------------------|-------------------------------|------------------------------|
|                          | VALUE                         | INTEREST                      | CONF                          | ANXIETY                      | ILG                           | EPG                           | ISC                           | ESU                          |
| INTEREST                 | .1407<br>N/ 1654<br>SIG .000  |                               |                               |                              |                               |                               |                               |                              |
| CONF                     | .1551<br>N/ 1659<br>SIG .000  | .1851<br>N/ 1660<br>SIG .000  |                               |                              |                               |                               |                               |                              |
| ANXIETY                  | -.1077<br>N/ 1658<br>SIG .000 | -.1006<br>N/ 1660<br>SIG .000 | -.1074<br>N/ 1650<br>SIG .000 |                              |                               |                               |                               |                              |
| ILG                      | .1016<br>N/ 1663<br>SIG .000  | .1655<br>N/ 1670<br>SIG .000  | .1369<br>N/ 1674<br>SIG .000  | .2057<br>N/ 1664<br>SIG .000 |                               |                               |                               |                              |
| EPG                      | .1515<br>N/ 1626<br>SIG .000  | -.0354<br>N/ 1628<br>SIG .086 | -.0463<br>N/ 1626<br>SIG .001 | .0091<br>N/ 1626<br>SIG .388 | -.1133<br>N/ 1639<br>SIG .000 |                               |                               |                              |
| ISC                      | .1260<br>N/ 1653<br>SIG .000  | .1250<br>N/ 1638<br>SIG .000  | .1280<br>N/ 1655<br>SIG .000  | .0807<br>N/ 1646<br>SIG .001 | .1379<br>N/ 1671<br>SIG .000  | -.1336<br>N/ 1624<br>SIG .000 |                               |                              |
| ESU                      | -.0970<br>N/ 1648<br>SIG .010 | -.0610<br>N/ 1630<br>SIG .007 | .1250<br>N/ 1652<br>SIG .000  | .0913<br>N/ 1640<br>SIG .000 | -.0936<br>N/ 1664<br>SIG .000 | .1339<br>N/ 1620<br>SIG .000  | -.1476<br>N/ 1650<br>SIG .000 |                              |
| UK                       | .1675<br>N/ 1624<br>SIG .000  | .1837<br>N/ 1621<br>SIG .000  | .1343<br>N/ 1627<br>SIG .000  | .1321<br>N/ 1621<br>SIG .000 | .0757<br>N/ 1637<br>SIG .001  | .0685<br>N/ 1595<br>SIG .000  | .0116<br>N/ 1603<br>SIG .320  | .2411<br>N/ 1617<br>SIG .000 |

Note. Psychological Constructs

|          |                                |
|----------|--------------------------------|
| VALUE    | Value                          |
| INTEREST | Interest                       |
| CONF     | Confidence                     |
| ANXIETY  | Anxiety                        |
| ILG      | Internal Learning Goals        |
| EPG      | External Performance Goals     |
| ISC      | Internal Stable Controllable   |
| ESU      | External Stable Uncontrollable |

Table 1

Descriptive and Correlational Data for the MAQ-APP Scales  
for All Students in the Working and Class Settings

| Descriptive Statistics |        |       |       |       |       |          |          |      |
|------------------------|--------|-------|-------|-------|-------|----------|----------|------|
| Variable               | Mean   | SD    | Min   | Max   | Range | Skewness | Kurtosis | N    |
| INTEREST               | 1.4508 | .3518 | 1.000 | 2.000 | 1.000 | -.000    | .000     | 1618 |
| CONF                   | 1.0580 | .3034 | 1.000 | 2.000 | 1.000 | -.000    | .000     | 1610 |
| ANXIETY                | 1.3448 | .3466 | 1.000 | 2.000 | 1.000 | -.000    | .000     | 1617 |
| ILG                    | 1.4134 | .3470 | 1.000 | 2.000 | 1.000 | -.000    | .000     | 1623 |
| EPG                    | 1.1075 | .3014 | 1.000 | 2.000 | 1.000 | -.000    | .000     | 1624 |
| ISC                    | 1.1587 | .3041 | 1.000 | 2.000 | 1.000 | -.000    | .000     | 1621 |
| ESU                    | 1.0387 | .3035 | 1.000 | 2.000 | 1.000 | -.000    | .000     | 1622 |
| VR                     | 1.0024 | .3041 | 1.000 | 2.000 | 1.000 | -.000    | .000     | 1599 |

Note. Psychological Constructs

|          |                                |
|----------|--------------------------------|
| VALUE    | Value                          |
| INTEREST | Interest                       |
| CONF     | Confidence                     |
| ANXIETY  | Anxiety                        |
| ILG      | Internal Learning Goals        |
| EPG      | External Performance Goals     |
| ISC      | Internal Stable Controllable   |
| ESU      | External Stable Uncontrollable |

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Table

Dependent Variable: Interest  
Independent Variables: Conf, Anx, IIG, EPG, ISC, ESU

|          |                              |                              |                              |                              |                              |                              |                              |                              |
|----------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|
| INTEREST | .2091<br>N/ 1647<br>SIG .007 |                              |                              |                              |                              |                              |                              |                              |
| CONF     | .2101<br>N/ 1647<br>SIG .000 | .1744<br>N/ 1651<br>SIG .000 |                              |                              |                              |                              |                              |                              |
| ANX      |                              | .1811<br>N/ 1651<br>SIG .000 | .1811<br>N/ 1651<br>SIG .000 |                              |                              |                              |                              |                              |
| IIG      | .2734<br>N/ 1642<br>SIG .000 | .3382<br>N/ 1665<br>SIG .000 | .1603<br>N/ 1667<br>SIG .000 | .1853<br>N/ 1667<br>SIG .000 |                              |                              |                              |                              |
| EPG      | .2048<br>N/ 1621<br>SIG .000 | .2756<br>N/ 1646<br>SIG .000 | .1086<br>N/ 1647<br>SIG .000 | .0420<br>N/ 1648<br>SIG .044 | .1518<br>N/ 1651<br>SIG .000 |                              |                              |                              |
| ISC      | .2678<br>N/ 1617<br>SIG .000 | .2883<br>N/ 1619<br>SIG .000 | .1978<br>N/ 1641<br>SIG .000 | .1480<br>N/ 1640<br>SIG .000 | .2180<br>N/ 1643<br>SIG .000 | .0463<br>N/ 1626<br>SIG .031 |                              |                              |
| ESU      | .2276<br>N/ 1617<br>SIG .000 | .1330<br>N/ 1644<br>SIG .000 | .3773<br>N/ 1645<br>SIG .000 | .2394<br>N/ 1645<br>SIG .000 | .0635<br>N/ 1650<br>SIG .005 | .2823<br>N/ 1630<br>SIG .000 | .0485<br>N/ 1620<br>SIG .025 |                              |
| VE       | .2867<br>N/ 1626<br>SIG .000 | .0640<br>N/ 1636<br>SIG .005 | .3867<br>N/ 1633<br>SIG .000 | .2028<br>N/ 1650<br>SIG .000 | .0006<br>N/ 1656<br>SIG .490 | .2206<br>N/ 1637<br>SIG .000 | .0556<br>N/ 1627<br>SIG .000 | .4212<br>N/ 1635<br>SIG .000 |

Note: Psychological Constructs

|          |                                |
|----------|--------------------------------|
| VALUE    | Value                          |
| INTEREST | Interest                       |
| CONF     | Confidence                     |
| ANXIETY  | Anxiety                        |
| IIG      | Internal Learning Goals        |
| EPG      | External Performance Goals     |
| ISC      | Internal Stable Controllable   |
| ESU      | External Stable Uncontrollable |

Control (a feeling of not having control over one's success or failure at problem solving); .33 between Confidence (lack of) and Unknown Control (lack of attributions for success or failure); and .30 between Value (lack of) and Internal Learning Goals (lack of internal motivations).

Within the Working With Other Students setting, 10 correlations in Table 5 are greater than .30. The strongest correlation, .47, is between need in the area of Internal Learning Goals (e.g., I would work hard on a word problem with other students if I could learn more math that way) and as with the During Class setting, need in the area of Interest (e.g., I think it would be interesting to work on a math word problem with other students). The other correlations greater than .35 are between Value and Interest (.43), Internal Learning Goals and Value (.42), Anxiety and Confidence (.38) and the attributions External Stable Uncontrollable and Unknown Control (.36).

In the Homework setting, seven correlations are greater than .30, and five are greater than .35. The strongest, .54, is between the construct Internal Learning Goals (e.g., I do not like to do word problems for homework unless I can learn something new by doing them) and Interest (I like working on math homework word problems). This is consistent with the During Class and Working With Other Students correlations. The four additional correlations greater than .35 are between External Stable Uncontrollable and Unknown Control (.42), Confidence and External Stable Uncontrollable (.38), Interest and Value (.36), and Confidence and Unknown Control (.36).

#### ANALYSES OF CLASS LEVEL RESPONSES: CRT-TYPE SCORES

The Mathematics Assessment Questionnaire was developed for use with either individual students or with an entire class. Based upon interviews with teachers, variability is found concerning which type of information would be most useful. Some teachers prefer to focus upon the individual student responses, and others prefer to examine the responses aggregated across an entire class. By examining the class responses a teacher is able to identify possible areas in which a number of students may need further work.

To help examine possible differences among classes, the CRT-type scores were aggregated to the class level. However, many classes included only a few students who responded to all three items within a three-item cluster. Therefore, a selection process was used to restrict the sample to only those classes with sufficient numbers of students to be meaningful for analyses.

### Forming the Class-level Responses

For the 107 classes in the fall 1988 sample, the number of students in a class who responded to all three items within each cluster ranged from 0 to 41, with an average of 16.23, and a standard deviation of 9.10. Including classes with at least 15 students who answered the three items within each cluster resulted in a total of 60 classes. The Internal Learning Goals in the Homework setting was excluded since it only had two items. It was decided to use this sample size for several reasons:

1. It was felt that a minimum class size of 15 permitted inclusion of enough students to reflect a classroom environment.
2. A sample of 60 classes was sufficient to permit most analyses.
3. The 60 classes included 1379 or 79% of the students, although only 58% (60 out of 107) of the classes.

The sample of 60 classes included seven out of the eight schools which participated in data collection. Table 7 presents demographic information for the 60 classes by grade. Approximately equal numbers of seventh (21), eighth (19) and ninth-grade (20) classes were included. Eight classes were in Intermediate schools, 46 classes in Junior High schools and three classes in High schools. Schools were located in Brooklyn, Bronx and Staten Island. The students ranged in age from 11 to 15 years old. Within the classes, there were on average two Asian children, five Black children, five Hispanic children, and 11 White children. Ethnicity was self-reported.

The average MAT national percentile within the 60 classes was 69%. As Table 7 indicates, the ninth grader classes had the lowest average national percentiles. The average national percentile on the DRP was 73%. As with the complete sample, the classes with the lowest national percentiles tended to be the ninth-grade classes. The percentage of students within a class who were below the 50 percentile on either test was also examined. These percentages are also presented in Table 7.

### Distribution Statistics for the Class-Level Responses

Table 8 presents statistics for the distributions of percentage of students within each class who were identified as needing additional work for each of the psychological constructs and settings (N=60 classes). For example, for the construct Value -- During Class, an average of 12.5% (SD=9.02) of the students in each class endorsed the items

Table 7

Demographic Information by Grade for the 60 Classes Included  
in Class-Level Analyses

|                                                          | Grade 7 | Grade 8 | Grade 9 | Total |
|----------------------------------------------------------|---------|---------|---------|-------|
| Number of Schools                                        | 5       | 6       | 6       | 8     |
| Number of Classes                                        | 21      | 19      | 20      | 60    |
| Number of Students<br>per Class who<br>Completed the MAQ |         |         |         |       |
| Mean                                                     | 21.24   | 24.84   | 23.05   | 22.98 |
| Range                                                    | 16-26   | 15-41   | 15-36   | 15-41 |
| Number of Boys<br>per Class                              |         |         |         |       |
| Mean                                                     | 9.57    | 10.95   | 10.30   | 10.25 |
| Range                                                    | 4-14    | 5-19    | 4-16    | 4-19  |
| Number of Girls<br>per Class                             |         |         |         |       |
| Mean                                                     | 11.52   | 13.84   | 12.65   | 12.63 |
| Range                                                    | 6-15    | 6-23    | 5-22    | 5-23  |
| Mean Age of Students<br>in Class                         | 12.03   | 12.99   | 14.03   | 13.00 |
| Mean Number of<br>Students by Ethnicity                  |         |         |         |       |
| Asian                                                    | 1.9     | 2.7     | 1.7     | 2.1   |
| Black                                                    | 4.0     | 5.1     | 4.6     | 4.5   |
| Hispanic                                                 | 3.7     | 5.1     | 4.9     | 4.6   |
| White                                                    | 10.7    | 10.7    | 11.3    | 10.9  |
| Others                                                   | .6      | .6      | .4      | .6    |

Table 7 (Continued)

|                                                                   | Grade 7   | Grade 8   | Grade 9   | Total     |
|-------------------------------------------------------------------|-----------|-----------|-----------|-----------|
| Metropolitan Achievement Test<br>National Percentile              |           |           |           |           |
| Mean                                                              | 72.12     | 73.56     | 61.77     | 69.24     |
| Range                                                             | 35.8-95.1 | 43.9-97.2 | 30.5-91.4 | 30.5-97.2 |
| Metropolitan Achievement Test<br>Percentage of Students Below 50% |           |           |           |           |
| Mean                                                              | 16.60     | 18.72     | 32.93     | 22.54     |
| Range                                                             | .0-72.2   | .0-66.7   | .0-90.9   | .0-90.9   |
| Degrees of Reading Power<br>National Percentile                   |           |           |           |           |
| Mean                                                              | 73.66     | 75.80     | 70.54     | 73.35     |
| Range                                                             | 44.0-89.4 | 63.0-89.1 | 56.2-87.1 | 44-89.4   |
| Degrees of Reading Power<br>Percentage of Students Below 50%      |           |           |           |           |
| Mean                                                              | 13.84     | 4.80      | 10.28     | 9.78      |
| Range                                                             | .0-66.6   | .0-25.0   | .0-40.0   | .0-66.6   |

Table 8

Distribution Statistics for the Percentage of Students  
Within Classes Identified as Needing Additional Work by  
Psychological Construct and Setting (N=60 Classes)

| Psychological<br>Construct          | Activity Setting |                                |           |
|-------------------------------------|------------------|--------------------------------|-----------|
|                                     | During Class     | Working With<br>Other Students | Homework  |
| Value                               |                  |                                |           |
| Mean                                | 12.51            | 24.35                          | 14.55     |
| SD                                  | 9.02             | 11.91                          | 9.20      |
| Median                              | 11.51            | 25.00                          | 14.29     |
| Mode                                | .00              | 28.00                          | .00       |
| Range:                              |                  |                                |           |
| low (N classes)                     | .00 (9)          | .00 (2)                        | .00 (6)   |
| high(N classes)                     | 36.36 (1)        | 55.26 (1)                      | 37.50 (1) |
| Number of classes<br>with >20% need | 12               | 20                             | 17        |
| Interest                            |                  |                                |           |
| Mean                                | 25.64            | 17.41                          | 39.06     |
| SD                                  | 10.54            | 8.82                           | 12.91     |
| Median                              | 24.57            | 18.47                          | 38.61     |
| Mode                                | 25.00            | 20.00                          | 22.73     |
| Range:                              |                  |                                |           |
| low (N classes)                     | 9.09 (1)         | .00 (1)                        | 13.33 (1) |
| high(N classes)                     | 54.55 (1)        | 36.00 (1)                      | 79.17 (1) |
| Number of classes<br>with >20% need | 42               | 28                             | 56        |
| Confidence                          |                  |                                |           |
| Mean                                | 7.71             | 8.22                           | 8.62      |
| SD                                  | 6.74             | 5.94                           | 6.58      |
| Median                              | 5.88             | 7.85                           | 7.36      |
| Mode                                | .00              | .00                            | .00       |
| Range:                              |                  |                                |           |
| low (N classes)                     | .00 (12)         | .00 (10)                       | .00 (9)   |
| high(N classes)                     | 29.17 (1)        | 22.73 (2)                      | 25.00 (1) |
| Number of classes<br>with >20% need | 4                | 3                              | 5         |

Table 8 (Continued)

| Psychological Construct           | Activity Setting |                             |                    |
|-----------------------------------|------------------|-----------------------------|--------------------|
|                                   | During Class     | Working With Other Students | Homework           |
| <b>Anxiety</b>                    |                  |                             |                    |
| Mean                              | 20.37            | 12.94                       | 12.48              |
| SD                                | 10.92            | 7.81                        | 8.78               |
| Median                            | 20.00            | 12.10                       | 12.40              |
| Mode                              | 25.00            | 5.00                        | .00                |
| Range:                            |                  |                             |                    |
| low (N classes)                   | .00 (1)          | .00 (2)                     | .00 (6)            |
| high(N classes)                   | 45.45 (1)        | 37.50 (1)                   | 31.82 (2)          |
| Number of classes with >20% need  | 31               | 9                           | 11                 |
| <b>Internal Learning Goals</b>    |                  |                             |                    |
| Mean                              | 17.22            | 15.33                       | 21.40 <sup>a</sup> |
| SD                                | 8.36             | 9.43                        | 10.84              |
| Median                            | 16.67            | 15.19                       | 20.00              |
| Mode                              | 5.88             | .00                         | 11.76              |
| Range:                            |                  |                             |                    |
| low (N classes)                   | .00 (1)          | .00 (4)                     | 4.55 (1)           |
| high(N classes)                   | 40.74 (1)        | 42.11 (1)                   | 46.15 (1)          |
| Number of classes with >20% need  | 22               | 21                          | 31                 |
| <b>External Performance Goals</b> |                  |                             |                    |
| Mean                              | 41.02            | 18.15                       | 40.67              |
| SD                                | 13.53            | 11.57                       | 11.10              |
| Median                            | 41.18            | 16.93                       | 42.79              |
| Mode                              | 25.00            | 20.00                       | 33.33              |
| Range:                            |                  |                             |                    |
| low (N classes)                   | 11.54 (1)        | 3.45 (1)                    | 11.76 (1)          |
| high(N classes)                   | 73.91 (1)        | 52.63 (1)                   | 62.50 (1)          |
| Number of classes with >20% need  | 57               | 26                          | 56                 |

Table 8 (Continued)

| Psychological Construct          | Activity Setting |                             |           |
|----------------------------------|------------------|-----------------------------|-----------|
|                                  | During Class     | Working With Other Students | Homework  |
| Internal Stable Controllable     |                  |                             |           |
| Mean                             | 9.60             | 41.31                       | 10.68     |
| SD                               | 6.66             | 13.10                       | 7.39      |
| Median                           | 9.76             | 40.59                       | 10.62     |
| Mode                             | .00              | 40.00                       | .00       |
| Range:                           |                  |                             |           |
| low (N classes)                  | .00 (1)          | 9.52 (1)                    | .00 (9)   |
| high(N classes)                  | 27.27 (1)        | 75.00 (1)                   | 31.58 (1) |
| Number of classes with >20% need | 5                | 57                          | 6         |
| External Stable Uncontrollable   |                  |                             |           |
| Mean                             | 19.48            | 13.73                       | 17.19     |
| SD                               | 10.68            | 8.73                        | 10.11     |
| Median                           | 17.91            | 12.50                       | 15.19     |
| Mode                             | 25.00            | .00                         | .00       |
| Range:                           |                  |                             |           |
| low (N classes)                  | .00 (1)          | .00 (5)                     | .00 (2)   |
| high(N classes)                  | 52.63 (1)        | 33.33 (1)                   | 56.25 (1) |
| Number of classes with >20% need | 25               | 14                          | 18        |
| Unknown Control                  |                  |                             |           |
| Mean                             | 9.06             | 11.22                       | 13.10     |
| SD                               | 7.52             | 10.09                       | 8.97      |
| Median                           | 8.71             | 8.17                        | 12.25     |
| Mode                             | .00              | .00                         | .00       |
| Range:                           |                  |                             |           |
| low (N classes)                  | .00 (12)         | .00 (8)                     | .00 (5)   |
| high(N classes)                  | 29.17 (1)        | 50.00 (1)                   | 42.11 (1) |
| Number of classes with >20% need | 7                | 10                          | 9         |

<sup>a</sup> Based upon a two-item cluster.

in a way indicating the need for follow-up work. The percentage of students within a class needing follow-up work in the area of Value -- During Class ranged from 0%, for nine classes, to 36% for one class (noted in the row "range low" and "high"). Table 8 also reports the number of classes with more than 20% of the students' responses indicating a need for follow-up work. For Value--During Class, 12 out of the 60 classes were in this category. For Value, Working With Others, 20 of the 60 classes were in this category and 17 were for Homework.

Examination of the data reveals that differences in the need for follow-up work within classes are found both across settings and across constructs. The lowest percentage of students responding in a way to indicate need for follow-up work was in the area of Confidence. Student responses to the motivation construct External Performance Goals, the attribution constructs Internal Stable Controllable and External Stable Uncontrollable suggest the possible areas of greatest need. Appendix III presents the frequency distributions for each construct in the class level analyses for each of the three settings. These tables include the frequencies, percentages and cumulative percentages of students in a class who responded in a way to indicate the need for teacher follow-up.

### Factor Analyses

Separate principal axis factor analyses were performed within each activity setting. The percentages of students within a class with CRT-type scores indicating a possible need for follow-up instructional work were calculated for each construct within each setting. Distribution statistics for these variables are presented (above) in Table 8. Two factors adequately characterized the data within each setting for these class level analyses.

In the During Class activity setting, 40% of the variance was accounted for by the two factor solution. Table 9 presents the factor loadings following an orthogonal rotation. (Based upon an oblique rotation, the two factors had a low correlation, .13.) Examination of the factor loadings greater than .30 suggests that the first dimension is characterized by classes along a dimension of engagement within the classroom activity or lesson. At one end of this bipolar factor are classes characterized by a large percent of students who indicate low Value for mathematics word problems, are not motivated by Internal Learning Goals, and express low Interest. These classes also include higher percentages of student who do not attribute success to Internal Stable Controllable causes such as understand the

Table 9

Factor Loadings (Orthogonal Rotation) of the Percentage of  
Students in a Class With a CRT-type Score Indicating Need  
for Additional Instructional Work in the  
During Class Setting

(N=60)

| Psychological Construct        | Factor 1     | Factor 2     |
|--------------------------------|--------------|--------------|
| Value                          | <b>.757</b>  | .031         |
| Internal Learning Goals        | <b>.662</b>  | .021         |
| Interest                       | <b>.651</b>  | <b>.448</b>  |
| Internal Stable Controllable   | <b>.615</b>  | .089         |
| External Stable Uncontrollable | <b>-.489</b> | .182         |
| Confidence                     | .196         | <b>.720</b>  |
| Unknown Control                | .062         | <b>.632</b>  |
| Anxiety                        | <b>-.081</b> | <b>.496</b>  |
| External Performance Goals     | <b>-.228</b> | <b>-.067</b> |

Note. Factor loadings > .30 are printed in bold.

math teachers explanation for a word problem because they always listen carefully. The other end of the factor is defined by the construct External Stable Uncontrollable in which success is attributed to external factors such as the teacher picks good math problems, the teacher is good or the problem was easy.

The second factor can be characterized as a dimension of confusion and anxiety. It is defined by classes with a higher percentage of students who are not confident, report uncertainty about why they succeed or fail (Unknown Control), report Anxiety about participating in the math class, and report a lack of Interest.

In summary, the factor analysis of MAQ CRT-type scores within the During Class setting revealed two factors. The first factor is defined by classes which include larger percentages of students who are not engaged in learning mathematical word problems. The second factor is defined by classes which include higher percentages of students who are confused and anxious about learning to do word problems.

In the Working With Other Students setting, the two factor solution accounted for 48% of the variance. Although an oblique rotation of the factors was also examined, it was similar to the orthogonal rotation and indicated the factors were essentially not correlated ( $r=.002$ ). Table 10 presents the factor loadings following the orthogonal rotation. The first factor is characterized by a large percentage of classes with students who are confused and uncertain about working word problems in a group, suggested by the high loading of the construct Unknown Control on the first factor. The classes include higher percentages of students who work the problems because of external motivators, (External Performance Goals), for example, to please the teacher. The classes also tend to have higher percentages of students who are anxious, not confident and more likely to attribute their failure to external causes, such as the problem being too hard. The other end of the factor is defined by attributions for failure due to Internal Stable Controllable causes such as "If I cannot solve a word problem with other students, it is because we did not try as hard as we could."

The second factor is defined by classes with a larger percent of students who report low interest, who are NOT motivated by internal factors (Internal Learning Goals), and who report low value for working mathematics word problems with other students. The negative loading on the attribution variable External Stable Uncontrollable defines the opposite end of the dimension. These are classes with higher percentages of students who attribute their failure to external factors, such as a difficult problem. This

Table 10

Factor Loadings (Orthogonal Rotation) of the Percentage of  
Students in a Class With a CRT-type Score Indicating Need  
for Additional Instructional Work in the  
Working With Other Students Setting

(N=60)

| Psychological Construct        | Factor 1    | Factor 2    |
|--------------------------------|-------------|-------------|
| Unknown Control                | <b>.799</b> | -.219       |
| External Performance Goals     | <b>.706</b> | .051        |
| Internal Stable Controllable   | -.582       | .082        |
| Anxiety                        | <b>.547</b> | .164        |
| External Stable Uncontrollable | <b>.526</b> | -.468       |
| Confidence                     | <b>.482</b> | .217        |
| Interest                       | .073        | <b>.852</b> |
| Internal Learning Goals        | .255        | <b>.758</b> |
| Value                          | -.111       | <b>.518</b> |

Note. Factor loadings > .30 are printed in bold.

factor may thus be characterized as a value low value and disinterest dimension for math word problems.

In summary, two factors are identified based upon student CRT-type scores for the Working With Other Students statements. In one dimension classes includes larger percentages of students who are confused, anxious and require external motivation for group work. The second factor includes classes with higher percentages of students who are not personally interested in and do not value working word problems in a group.

Within the Homework setting, the two factor solution accounted for 48% of the variance. The two factors were correlated only .18. Table 11 presents the factor loadings following the orthogonal rotation. The first factor can be characterized by classes with a larger percentage of students attributing their failure to external causes and uncertainty about why they succeed or fail at working word problems for homework. They report lower confidence and lower value for doing homework word problems. This dimension can be described as identifying classes with larger percentages of students who do not believe they can succeed in Homework and are not taking responsibility for their lack of success.

The second factor has the highest loadings on the motivation Internal Learning Goals and on the Interest variable. The dimension can be characterized as low caring about working homework word problems. In addition to not being motivated by internal causes and not reporting an interest in working word problems for homework, students do not attribute their success to their effort, and they report low value for homework word problems. Factor 2 appears to characterize classes with higher percentages of students who do not believe they derived any learning benefit from doing their homework word problems.

The factor analysis of the Homework statements suggests there are two dimensions. The first identifies classes with higher percentages of students who are not confident about doing homework word problems. The second factor identifies classes with higher percentages of students who believed they learn little from doing their math homework word problems.

#### REVISION OF THE MATHEMATICS ASSESSMENT QUESTIONNAIRE

The Mathematics Assessment Questionnaire was developed for use by teachers and students. It was administered to 1737 students in grades seven, eight and nine in the fall of 1988. Based upon a review of analyses of these data, four items were identified for revision. The alpha reliability

Table 11

Factor Loadings (Orthogonal Rotation) of the Percentage of  
Students in a Class With a CRT-type Score Indicating Need  
for Additional Instructional Work in the  
Homework Setting

(N=60)

| Psychological<br>Construct        | Factor 1    | Factor 2    |
|-----------------------------------|-------------|-------------|
| External Stable<br>Uncontrollable | <b>.823</b> | -.049       |
| Unknown Control                   | <b>.821</b> | .010        |
| Confidence                        | <b>.691</b> | .203        |
| Internal Learning<br>Goals        | -.123       | <b>.918</b> |
| Interest                          | -.205       | <b>.713</b> |
| Internal Stable<br>Controllable   | .265        | <b>.557</b> |
| Value                             | <b>.415</b> | <b>.502</b> |
| External Performance<br>Goals     | .201        | .287        |
| Anxiety                           | .282        | .024        |

Note. Factor loadings > .30 are printed in bold.

coefficients of the three-item clusters, presented in Table 3, indicate a lack of internal consistency within two clusters: Interest - During Class, and External Performance Goals - During Class.

In addition, the three-item cluster Internal Learning Goals for Homework needed revision (one item was dropped from scoring in all earlier analyses). Examination of the frequency distributions, change in the reliability estimate when items were dropped, and the content of the individual statements helped guide the decision about which items should be rewritten. To help in rewriting the statements, the statements assessing the same construct were examined across all three activity settings.

In the During Class setting three items were rewritten:

#### INTEREST

Original MAQ I get bored when other students are working word problems on the board in math class.

Revised MAQ I get bored when working word problems in math class.

#### EXTERNAL PERFORMANCE GOALS

Original MAQ I volunteer to do a word problem on the board if I think it will help my grade.

Revised MAQ I only volunteer to answer word problems in math class if it will help my grade.

#### EXTERNAL PERFORMANCE GOALS

Original MAQ I pay attention when my teacher explains word problems if I know I will have a test on them.

Revised MAQ I only ask my math teacher questions about math word problems to help my grade.

The construct Internal Learning Goal within the Homework setting included only two items which statistically functioned in the expected way. Therefore, a third item was written for this construct in the Homework setting.

#### INTERNAL LEARNING GOALS

Revised MAQ I like to do word problems for homework because I can learn something by doing them.

Table 12

Alpha Reliability Coefficients for MAQ  
and MAQ With Revised Statements

| Psychological<br>Construct         | Revised<br>MAQ<br>(n=43) | MAQ<br>(n=1737) |
|------------------------------------|--------------------------|-----------------|
| <u>DURING CLASS</u>                |                          |                 |
| Value                              | .537                     | .500            |
| *Interest                          | .529                     | .335            |
| Confidence                         | .731                     | .548            |
| Anxiety                            | .601                     | .576            |
| Internal Learning<br>Goals         | .579                     | .710            |
| *External Performance<br>Goals     | .553                     | .203            |
| Internal Stable<br>Controllable    | .499                     | .620            |
| *Internal Stable<br>Uncontrollable | .662                     | .593            |
| External Stable<br>Uncontrollable  | .267                     | .418            |
| Unknown Control                    | .659                     | .683            |

Table 12 (continued)

| Psychological Construct        | Revised MAQ (n=43) | MAQ (n=1737) |
|--------------------------------|--------------------|--------------|
| <u>HOMEWORK</u>                |                    |              |
| Value                          | -.183              | .483         |
| Interest                       | .831               | .725         |
| Confidence                     | .638               | .611         |
| Anxiety                        | .510               | .451         |
| * Internal Learning Goals      | .715               | .386         |
| External Performance Goals     | .266               | .543         |
| Internal Stable Controllable   | .420               | .605         |
| Internal Stable Uncontrollable | .685               | .730         |
| External Stable Uncontrollable | .643               | .603         |
| Unknown                        | .736               | .661         |

Note: Constructs with an asterisk indicate the three-item cluster includes revised items.

The affective belief, motivation and attribution MAQ statements in the During Class and Homework setting, with the revised statements included, were administered to 52 seventh grade students in two classes in the fall 1990. Items were presented in the same format and order as they appear in the MAQ. Although the school which these students attended participated in the larger study, none of the students had previously completed the MAQ. Table 12 presents the alpha reliability coefficients for the MAQ with the revised statements as well as the estimates based upon the original MAQ. The coefficients based upon administration of the revised statements increased sufficiently to warrant their inclusion in the MAQ. It is unclear why the estimate for Value in the Homework setting decreased since the statements were not changed. The difference can be accounted for by random error in the data. In addition to examining student responses to the revised statements, an alternative wording for the attribution Internal Stable Uncontrollable in the During Class setting was examined. This is discussed in Appendix I.

Need indicators for the four revised items are established using the same criteria as the originally worded items. Need indicators for the revised items for the Mathematics Assessment Questionnaire are determined as follows:

INTEREST - DURING CLASS (Statement number 44)

I get bored when working word problems in math class.

A response of VERY TRUE or TRUE indicates possible need for follow-up work -- the student is NOT interested.

EXTERNAL PERFORMANCE GOALS - DURING CLASS  
(Statement number 40)

I only volunteer to answer questions about word problems in math class if it will help my grade.

A response of VERY TRUE or TRUE indicates possible need for follow-up work -- the student is motivated to answer questions by external factors, helping my grade.

EXTERNAL PERFORMANCE GOALS - DURING CLASS  
(Statement number 36)

I only ask my math teacher questions about math word problems to help my grade.

A response of VERY TRUE or TRUE indicates possible need for

follow-up work -- the student is motivated to ask questions by external factors, helping my grade.

INTERNAL LEARNING GOALS - HOMEWORK (Statement number 15)

I like to do word problems for homework because I can learn something by doing them.

A response of NOT AT ALL TRUE or NOT VERY TRUE indicates possible need for follow-up work -- the student is NOT motivated to do homework word problems by internal factors, learning something.

For further use of the MAQ, the revised items are replaced for the original statements. Since the direction of the wording (and scoring of need indicators) did not change from the original version, the scoring of the need indicators also did not change. Thus, Table 1, which presents the revised a list of item numbers for each category and the direction in which they are counted to determine if they meet the criteria of need, is also appropriate for the revised MAQ.

REFERENCE LIST

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## APPENDIX I

### A Comparison of Two Data Sets With the Internal Stable Uncontrollable Statements Differing for an Attribution of Success or Failure Within the During Class Activity Setting

In the Mathematics Assessment Questionnaire, statements written to assess the attribution Internal Stable Uncontrollable focused upon either success or failure at problem solving. Successful problem solving was examined in two settings:

During class (i.e., If I can follow my teacher's explanation for word problems, it is because I am smart), and

Working With Other Students (i.e., If I solve a word problem working with other students, it is because we think mathematically.)

Failure at problem solving is examined in the third setting:

Homework (i.e., If I am not able to do my next math homework word problems, it is because I am not clever in math.)

Regardless of whether the item focuses upon success or failure a student would be identified as possibly needing additional instructional work if student responds VERY TRUE or TRUE. For example, if success or failure is attributed to ability -- something which is uncontrollable, the student is identified. Thus, a response of VERY TRUE or TRUE would indicate the need for follow-up work. Students could respond to 0, 1, 2 or 3 statements for each psychological construct within each setting in a way to indicate the need for additional instructional work. Examination of student responses suggests that differences are found depending upon whether success or failure is examined. Responses of 1737 students revealed greater differences between settings than would be expected, with greatest consistency between the During Class and Working With Other Students settings - both of which assess attributions for success.

In the During Class setting (success) students responded to an average of 1.4 items, and in the working with others 1.2 items. However, in the Homework setting, in which failure at problem solving was the focus, students responded in a way to indicate need to an average of .36 items.

The percentage of students in 60 classes identified as needing additional work also varied by setting. An average

of 45% of the class was identified based upon responses to the During Class statements, 39% of the class based upon the Working With Others, but only 9% based upon the Homework statements. Even more striking are the number of classes with more than 20% of the students responding in a way to indicate the need for follow-up work. In the During Class setting 59 out of 60 classes included over 20% of the students. In the Working With Others setting, the number was 58 out of 60 classes. However, in the Homework setting only 3 out of the 60 classes were identified.

Coefficient alpha reliabilities of responses to three attributions items in the cluster based on the dichotomized statement scores revealed acceptable coefficients .515 During Class, .556 (Working With Others) and .639 (Homework). Therefore, the differences could not be attributed to responses being more consistent within one setting than in another.

The results of the analyses discussed above suggested that different results are found when success is assessed in contrast to failure. Thus, a small-scale study was conducted in the fall 1990 to help identify differences. The ISU statements in the During Classroom were rewritten to assess failure rather than success. The new and revised items are presented below.

ORIGINAL WORDING

REVISED WORDING

DURING CLASS

If I correctly answer a question my teacher asks about word problems, it is because I have the ability to do math.

If I cannot answer a question my teacher asks about word problems, it is because I do not have the ability to do math.

If I can follow my teacher's explanation for word problems, it is because I am smart.

If I cannot follow my teacher's explanation for word problems, it is because I am not smart.

If I can solve a word problem the teacher puts on the board, it is because I think mathematically.

If I cannot solve a word problem the teacher puts on the board, it is because I cannot think mathematically.

These revised statements, along with the other

affective beliefs, motivation and attribution statements in the During Class and Homework setting were administered om fall 1990 to 52 seventh grade students in two classes. Although the school which these students attended participated in the larger study, none of the students had previously completed the MAQ.

Based upon the revised MAQ statements, the mean number of items which students responded to in a way to contribute to the need indicator was .54 for the During Class setting and .40 for the Homework setting. Thus, the means for the Homework setting, with items which were not changed, did not differ greatly from the results based upon the 1737 students. However, when success at problem solving was replaced with failure in the During Class setting, the average number of items decreased greatly. The results were similar to those for the Homework setting. This suggests that identifying statements which attribute success to ability and statements which attribute failure to ability are assessing different constructs for adolescents.

## APPENDIX II

### Affective, Motivational and Attributional Statements: Dichotomized Statement Scores

Appendix II presents the number and percentage of students with a dichotomized statement score which is keyed in the direction to contribute to the CRT-type scores. The numbers and percentages of missing responses to each statement are also indicated. The numbers and percentages of students with scores of 1 are based upon the total number of students receiving a score on the item and does not include students with missing responses. Data are from the fall 1988 sample of 1737 students in grades seven through nine.

Table 1

Number and Percentage of 1737 Students in Grades 7 - 9  
With a Dichotomized Statement Score of 1 (Contributing to  
CRT-type Need Indicator) by Activity Setting

|                              | Score<br>of 1 |    | Missing |     |                       | Score<br>of 1 |    | Missing |     |
|------------------------------|---------------|----|---------|-----|-----------------------|---------------|----|---------|-----|
| Statement<br>Number          | N             | %  | N       | %   | Statement<br>Number   | N             | %  | N       | %   |
| DURING CLASS:                |               |    |         |     |                       |               |    |         |     |
| During20                     | 251           | 15 | 14      | .8  | During35              | 557           | 32 | 29      | 2.0 |
| During21                     | 346           | 20 | 40      | 2.0 | During36              | 1269          | 73 | 36      | 2.0 |
| During22 <sup>a</sup>        |               |    |         |     | During37 <sup>a</sup> |               |    |         |     |
| During23                     | 770           | 44 | 30      | 2.0 | During38              | 237           | 14 | 39      | 2.0 |
| During24                     | 504           | 29 | 26      | 2.0 | During39              | 435           | 25 | 25      | 1.0 |
| During25                     | 189           | 11 | 43      | 3.0 | During40              | 793           | 46 | 26      | 2.0 |
| During26                     | 479           | 28 | 22      | 1.0 | During41 <sup>a</sup> |               |    |         |     |
| During27                     | 419           | 24 | 24      | 1.0 | During42              | 331           | 19 | 12      | .7  |
| During28                     | 146           | 8  | 26      | 2.0 | During43              | 283           | 16 | 18      | 1.0 |
| During29                     | 344           | 20 | 19      | 1.0 | During44              | 470           | 27 | 20      | 1.0 |
| During30                     | 576           | 33 | 14      | .8  | During45              | 289           | 17 | 20      | 1.0 |
| During31                     | 361           | 21 | 28      | 2.0 | During46              | 326           | 19 | 29      | 2.0 |
| During32                     | 191           | 11 | 20      | 1.0 | During47              | 238           | 14 | 23      | 1.0 |
| During33                     | 211           | 12 | 26      | 2.0 | During48              | 178           | 10 | 17      | 1.0 |
| During34                     | 444           | 26 | 27      | 2.0 | During49              | 650           | 37 | 14      | .8  |
| WORKING WITH OTHER STUDENTS: |               |    |         |     |                       |               |    |         |     |
| With024                      | 336           | 19 | 15      | 1.0 | With039               | 408           | 24 | 38      | 2.0 |
| With025                      | 297           | 17 | 27      | 2.0 | With040               | 321           | 19 | 40      | 2.0 |
| With026 <sup>a</sup>         |               |    |         |     | With041               | 767           | 44 | 48      | 3.0 |
| With027                      | 225           | 13 | 31      | 2.0 | With042               | 233           | 13 | 46      | 3.0 |
| With028                      | 374           | 22 | 48      | 3.0 | With043               | 454           | 26 | 44      | 3.0 |
| With029                      | 270           | 16 | 30      | 2.0 | With044               | 680           | 39 | 33      | 2.0 |
| With030                      | 344           | 20 | 27      | 2.0 | With045               | 368           | 21 | 29      | 2.0 |
| With031                      | 401           | 23 | 25      | 1.0 | With046               | 232           | 13 | 24      | 1.0 |
| With032                      | 585           | 34 | 36      | 2.0 | With047               | 283           | 16 | 35      | 2.0 |
| With033                      | 310           | 18 | 25      | 1.0 | With048               | 242           | 14 | 36      | 2.0 |
| With034                      | 567           | 33 | 24      | 1.0 | With049               | 877           | 50 | 42      | 2.0 |
| With035                      | 209           | 12 | 27      | 2.0 | With050               | 446           | 26 | 36      | 2.0 |
| With036                      | 603           | 35 | 33      | 2.0 | With051               | 276           | 16 | 35      | 2.0 |
| With037                      | 169           | 10 | 28      | 2.0 | With052 <sup>a</sup>  |               |    |         |     |
| With038 <sup>a</sup>         |               |    |         |     | With053               | 590           | 34 | 20      | 1.0 |

TABLE 1 (Continued)

| Score of 1            |     |    |    |     | Missing               |     |    |    |     | Score of 1       |   |   |   |   | Missing          |   |   |   |   |
|-----------------------|-----|----|----|-----|-----------------------|-----|----|----|-----|------------------|---|---|---|---|------------------|---|---|---|---|
| Statement Number      | N   | %  | N  | %   | Statement Number      | N   | %  | N  | %   | Statement Number | N | % | N | % | Statement Number | N | % | N | % |
| HOMEWORK:             |     |    |    |     |                       |     |    |    |     |                  |   |   |   |   |                  |   |   |   |   |
| HomeWk10 <sup>a</sup> |     |    |    |     | HomeWk25              | 315 | 18 | 23 | 1.0 |                  |   |   |   |   |                  |   |   |   |   |
| HomeWk11              | 300 | 17 | 21 | 1.0 | HomeWk26              | 391 | 23 | 17 | 1.0 |                  |   |   |   |   |                  |   |   |   |   |
| HomeWk12              | 347 | 20 | 40 | 2.0 | HomeWk27              | 359 | 21 | 31 | 2.0 |                  |   |   |   |   |                  |   |   |   |   |
| HomeWk13              | 263 | 15 | 30 | 2.0 | HomeWk28              | 694 | 40 | 22 | 1.0 |                  |   |   |   |   |                  |   |   |   |   |
| HomeWk14              | 771 | 44 | 21 | 1.0 | HomeWk29              | 797 | 46 | 36 | 2.0 |                  |   |   |   |   |                  |   |   |   |   |
| HomeWk15 <sup>b</sup> |     |    |    |     | HomeWk30              | 349 | 20 | 27 | 2.0 |                  |   |   |   |   |                  |   |   |   |   |
| HomeWk16 <sup>a</sup> |     |    |    |     | HomeWk31              | 505 | 29 | 31 | 2.0 |                  |   |   |   |   |                  |   |   |   |   |
| HomeWk17              | 212 | 12 | 18 | 1.0 | HomeWk32              | 551 | 32 | 28 | 2.0 |                  |   |   |   |   |                  |   |   |   |   |
| HomeWk18              | 746 | 43 | 26 | 2.0 | HomeWk33              | 587 | 34 | 19 | 1.0 |                  |   |   |   |   |                  |   |   |   |   |
| HomeWk19              | 339 | 20 | 25 | 1.0 | HomeWk34              | 640 | 35 | 18 | 1.0 |                  |   |   |   |   |                  |   |   |   |   |
| HomeWk20              | 382 | 22 | 23 | 1.0 | HomeWk35              | 241 | 14 | 8  | .5  |                  |   |   |   |   |                  |   |   |   |   |
| HomeWk21              | 229 | 13 | 19 | 1.0 | HomeWk36              | 340 | 20 | 10 | .6  |                  |   |   |   |   |                  |   |   |   |   |
| HomeWk22              | 197 | 11 | 10 | .6  | HomeWk37              | 258 | 15 | 32 | 2.0 |                  |   |   |   |   |                  |   |   |   |   |
| HomeWk23              | 564 | 33 | 17 | 1.0 | HomeWk38 <sup>1</sup> |     |    |    |     |                  |   |   |   |   |                  |   |   |   |   |
| HomeWk24              | 264 | 15 | 25 | 1.0 | HomeWk39              | 359 | 21 | 16 | .9  |                  |   |   |   |   |                  |   |   |   |   |

<sup>a</sup> Items which assess the attribution Internal Stable Uncontrollable are not assigned a dichotomized statement score.

Table 2

Number and Percentage of Students by Grade With a  
Dichotomized Statement Score of 1  
(Contributing to CRT-type Need Indicator) by Grade  
During Class Activity Setting

|                       | Grade 7<br>(N=600) |    | Grade 8<br>(N=602) |    | Grade 9<br>(N=535) |    | Total<br>(N=1737) |    |
|-----------------------|--------------------|----|--------------------|----|--------------------|----|-------------------|----|
|                       | N                  | %  | N                  | %  | N                  | %  | N                 | %  |
| During20              | 71                 | 12 | 87                 | 15 | 93                 | 17 | 251               | 15 |
| During21              | 162                | 27 | 86                 | 14 | 98                 | 18 | 346               | 20 |
| During22 <sup>a</sup> |                    |    |                    |    |                    |    |                   |    |
| During23              | 306                | 51 | 263                | 44 | 201                | 37 | 770               | 44 |
| During24              | 161                | 27 | 166                | 28 | 177                | 33 | 504               | 29 |
| During25              | 81                 | 14 | 58                 | 10 | 50                 | 9  | 189               | 11 |
| During26              | 163                | 27 | 148                | 25 | 168                | 31 | 479               | 28 |
| During27              | 158                | 26 | 133                | 22 | 128                | 24 | 419               | 24 |
| During28              | 50                 | 8  | 44                 | 7  | 52                 | 10 | 146               | 8  |
| During29              | 127                | 21 | 117                | 19 | 100                | 19 | 344               | 20 |
| During30              | 176                | 29 | 203                | 34 | 197                | 37 | 576               | 33 |
| During31              | 149                | 25 | 111                | 18 | 101                | 19 | 361               | 21 |
| During32              | 60                 | 10 | 67                 | 11 | 64                 | 12 | 191               | 11 |
| During33              | 74                 | 12 | 60                 | 10 | 77                 | 14 | 211               | 12 |
| During34              | 108                | 18 | 164                | 27 | 172                | 32 | 444               | 26 |
| During35              | 168                | 28 | 189                | 31 | 200                | 37 | 557               | 32 |
| During36              | 432                | 72 | 443                | 74 | 394                | 74 | 1269              | 73 |
| During37 <sup>a</sup> |                    |    |                    |    |                    |    |                   |    |
| During38              | 68                 | 11 | 82                 | 14 | 87                 | 16 | 237               | 14 |
| During39              | 160                | 27 | 150                | 25 | 125                | 23 | 435               | 25 |
| During40              | 254                | 42 | 260                | 43 | 279                | 52 | 793               | 46 |
| During41 <sup>a</sup> |                    |    |                    |    |                    |    |                   |    |
| During42              | 99                 | 17 | 132                | 22 | 100                | 19 | 331               | 19 |
| During43              | 96                 | 16 | 109                | 18 | 78                 | 15 | 283               | 16 |
| During44              | 178                | 30 | 144                | 24 | 148                | 28 | 470               | 27 |
| During45              | 83                 | 14 | 105                | 17 | 101                | 19 | 289               | 17 |
| During46              | 135                | 23 | 105                | 17 | 86                 | 16 | 326               | 19 |
| During47              | 72                 | 12 | 91                 | 15 | 75                 | 14 | 238               | 14 |
| During48              | 85                 | 14 | 40                 | 7  | 53                 | 10 | 178               | 10 |
| During49              | 192                | 32 | 225                | 37 | 233                | 44 | 650               | 37 |

<sup>a</sup> Items which assess the attribution Internal Stable Uncontrollable are not assigned a dichotomized statement score.

Table 3

Number and Percentage of Students by Grade With a  
Dichotomized Statement Score of 1  
(Contributing to CRT-type Need Indicator)  
Working With Other Students Activity Setting

|                      | Grade 7<br>(N=600) |    | Grade 8<br>(N=602) |    | Grade 9<br>(N=535) |    | Total<br>(N=1737) |    |
|----------------------|--------------------|----|--------------------|----|--------------------|----|-------------------|----|
|                      | N                  | %  | N                  | %  | N                  | %  | N                 | %  |
| With024              | 119                | 20 | 114                | 19 | 103                | 19 | 336               | 19 |
| With025              | 125                | 21 | 94                 | 16 | 78                 | 15 | 297               | 17 |
| With026 <sup>a</sup> |                    |    |                    |    |                    |    |                   |    |
| With027              | 86                 | 14 | 74                 | 12 | 65                 | 12 | 225               | 13 |
| With028              | 145                | 24 | 121                | 20 | 108                | 20 | 374               | 22 |
| With029              | 107                | 18 | 84                 | 14 | 79                 | 15 | 270               | 16 |
| With030              | 116                | 19 | 116                | 19 | 112                | 21 | 344               | 20 |
| With031              | 150                | 25 | 134                | 22 | 117                | 22 | 401               | 23 |
| With032              | 168                | 28 | 215                | 36 | 202                | 38 | 585               | 34 |
| With033              | 109                | 18 | 106                | 18 | 95                 | 18 | 310               | 18 |
| With034              | 179                | 30 | 216                | 36 | 172                | 32 | 567               | 33 |
| With035              | 86                 | 14 | 59                 | 10 | 64                 | 12 | 209               | 12 |
| With036              | 201                | 34 | 204                | 34 | 198                | 37 | 603               | 35 |
| With037              | 73                 | 12 | 54                 | 9  | 42                 | 8  | 169               | 10 |
| With038 <sup>a</sup> |                    |    |                    |    |                    |    |                   |    |
| With039              | 138                | 23 | 139                | 23 | 131                | 25 | 408               | 24 |
| With040              | 117                | 20 | 111                | 18 | 93                 | 17 | 321               | 19 |
| With041              | 269                | 45 | 273                | 45 | 225                | 42 | 767               | 44 |
| With042              | 98                 | 17 | 69                 | 12 | 66                 | 12 | 233               | 13 |
| With043              | 181                | 30 | 141                | 23 | 132                | 25 | 454               | 26 |
| With044              | 219                | 37 | 231                | 38 | 230                | 43 | 680               | 39 |
| With045              | 135                | 23 | 136                | 23 | 97                 | 18 | 368               | 21 |
| With046              | 89                 | 15 | 64                 | 11 | 79                 | 15 | 232               | 13 |
| With047              | 106                | 18 | 89                 | 15 | 88                 | 16 | 283               | 16 |
| With048              | 104                | 18 | 66                 | 11 | 72                 | 14 | 242               | 14 |
| With049              | 305                | 51 | 302                | 50 | 270                | 50 | 877               | 50 |
| With050              | 154                | 26 | 144                | 24 | 148                | 28 | 446               | 26 |
| With051              | 100                | 17 | 101                | 17 | 75                 | 14 | 276               | 16 |
| With052 <sup>a</sup> |                    |    |                    |    |                    |    |                   |    |
| With053              | 208                | 35 | 194                | 32 | 188                | 35 | 590               | 34 |

<sup>a</sup> Items which assess the attribution Internal Stable Uncontrollable are not assigned a dichotomized statement score.

Table 4

Number and Percentage of Students by Grade With a  
Dichotomized Statement Score of 1  
(Contributing to CRT-type Need Indicator)  
Homework Activity Setting

|                       | Grade 7<br>(N=600) |    | Grade 8<br>(N=602) |    | Grade 9<br>(N=535) |    | Total<br>(N=1737) |    |
|-----------------------|--------------------|----|--------------------|----|--------------------|----|-------------------|----|
|                       | N                  | %  | N                  | %  | N                  | %  | N                 | %  |
| HomeWk10 <sup>a</sup> |                    |    |                    |    |                    |    |                   |    |
| HomeWk11              | 122                | 20 | 96                 | 16 | 82                 | 15 | 300               | 17 |
| HomeWk12              | 126                | 21 | 115                | 19 | 106                | 20 | 347               | 20 |
| HomeWk13              | 99                 | 17 | 91                 | 15 | 73                 | 14 | 263               | 15 |
| HomeWk14              | 247                | 41 | 270                | 45 | 254                | 48 | 771               | 44 |
| HomeWk15 <sup>b</sup> |                    |    |                    |    |                    |    |                   |    |
| HomeWk16 <sup>a</sup> |                    |    |                    |    |                    |    |                   |    |
| HomeWk17              | 80                 | 13 | 72                 | 12 | 60                 | 11 | 212               | 12 |
| HomeWk18              | 226                | 38 | 256                | 43 | 264                | 49 | 746               | 43 |
| HomeWk19              | 132                | 22 | 103                | 17 | 104                | 19 | 339               | 20 |
| HomeWk20              | 126                | 21 | 129                | 21 | 127                | 24 | 382               | 22 |
| HomeWk21              | 79                 | 13 | 88                 | 15 | 62                 | 12 | 229               | 13 |
| HomeWk22              | 61                 | 10 | 66                 | 11 | 70                 | 13 | 197               | 11 |
| HomeWk23              | 182                | 30 | 194                | 32 | 188                | 35 | 564               | 33 |
| HomeWk24              | 118                | 20 | 80                 | 13 | 66                 | 12 | 264               | 15 |
| HomeWk25              | 104                | 17 | 114                | 19 | 97                 | 18 | 315               | 18 |
| HomeWk26              | 134                | 22 | 118                | 20 | 139                | 26 | 391               | 23 |
| HomeWk27              | 130                | 22 | 119                | 20 | 110                | 21 | 359               | 21 |
| HomeWk28              | 229                | 38 | 232                | 39 | 233                | 44 | 694               | 40 |
| HomeWk29              | 280                | 47 | 271                | 45 | 246                | 46 | 797               | 46 |
| HomeWk30              | 142                | 24 | 106                | 18 | 101                | 19 | 349               | 20 |
| HomeWk31              | 165                | 28 | 166                | 28 | 174                | 33 | 505               | 29 |
| HomeWk32              | 196                | 33 | 184                | 31 | 171                | 32 | 551               | 32 |
| HomeWk33              | 205                | 34 | 209                | 35 | 173                | 32 | 587               | 34 |
| HomeWk34              | 215                | 36 | 222                | 37 | 203                | 38 | 640               | 35 |
| HomeWk35              | 87                 | 15 | 86                 | 14 | 68                 | 13 | 241               | 14 |
| HomeWk36              | 133                | 22 | 119                | 20 | 88                 | 16 | 340               | 20 |
| HomeWk37              | 86                 | 14 | 80                 | 13 | 92                 | 17 | 258               | 15 |
| HomeWk38 <sup>a</sup> |                    |    |                    |    |                    |    |                   |    |
| HomeWk39              | 146                | 24 | 113                | 19 | 100                | 19 | 359               | 21 |

<sup>a</sup> Items which assess the attribution Internal Stable Uncontrollable are not assigned a dichotomized statement score.

### APPENDIX III

Appendix III presents the distributions for the number and percent of students within 60 classes needing follow-up for each construct within each setting. Sixty classes (of 107) had at least 15 students who completed all statements of the Mathematics Assessment Questionnaire. The variable of "percentage of students needing follow-up" is based on students in these 60 classes. For example, in the first distribution, VALUE- DURING CLASS, there were nine classes (15% of all classes) that did not have any student with a CRT-type score of 2 or 3, suggesting a need for teacher follow-up. There was one class where 36% of the students meet this criteria.

VALUE -- DURING CLASS

| % OF STUDENTS<br>NEEDING FOLLOW UP | NUMBER OF<br>CLASSES | % OF<br>CLASSES | CUMULATIVE<br>PERCENT |
|------------------------------------|----------------------|-----------------|-----------------------|
|------------------------------------|----------------------|-----------------|-----------------------|

|       |   |      |       |
|-------|---|------|-------|
| .00   | 9 | 15.0 | 15.0  |
| 2.44  | 1 | 1.7  | 16.7  |
| 4.00  | 1 | 1.7  | 18.3  |
| 4.55  | 1 | 1.7  | 20.0  |
| 5.00  | 1 | 1.7  | 21.7  |
| 5.26  | 1 | 1.7  | 23.3  |
| 5.88  | 3 | 5.0  | 28.3  |
| 7.14  | 1 | 1.7  | 30.0  |
| 7.41  | 1 | 1.7  | 31.7  |
| 8.00  | 2 | 3.3  | 35.0  |
| 8.33  | 1 | 1.7  | 36.7  |
| 9.09  | 2 | 3.3  | 40.0  |
| 9.52  | 2 | 3.3  | 43.3  |
| 10.00 | 3 | 5.0  | 48.3  |
| 10.53 | 1 | 1.7  | 50.0  |
| 12.50 | 2 | 3.3  | 53.3  |
| 13.04 | 1 | 1.7  | 55.0  |
| 13.33 | 1 | 1.7  | 56.7  |
| 14.29 | 1 | 1.7  | 58.3  |
| 14.81 | 1 | 1.7  | 60.0  |
| 15.38 | 1 | 1.7  | 61.7  |
| 15.79 | 4 | 6.7  | 68.3  |
| 16.67 | 1 | 1.7  | 70.0  |
| 17.39 | 2 | 3.3  | 73.3  |
| 17.86 | 1 | 1.7  | 75.0  |
| 18.18 | 1 | 1.7  | 76.7  |
| 18.75 | 1 | 1.7  | 78.3  |
| 19.23 | 1 | 1.7  | 80.0  |
| 20.00 | 1 | 1.7  | 81.7  |
| 20.83 | 2 | 3.3  | 85.0  |
| 22.22 | 1 | 1.7  | 86.7  |
| 23.81 | 1 | 1.7  | 88.3  |
| 24.00 | 1 | 1.7  | 90.0  |
| 24.14 | 1 | 1.7  | 91.7  |
| 25.00 | 1 | 1.7  | 93.3  |
| 28.57 | 1 | 1.7  | 95.0  |
| 31.58 | 1 | 1.7  | 96.7  |
| 33.33 | 1 | 1.7  | 98.3  |
| 36.36 | 1 | 1.7  | 100.0 |

|       |    |       |
|-------|----|-------|
| TOTAL | 60 | 100.0 |
|-------|----|-------|

|          |        |          |         |          |        |
|----------|--------|----------|---------|----------|--------|
| MEAN     | 12.512 | STD ERR  | 1.164   | MEDIAN   | 11.513 |
| MODE     | .000   | STD DEV  | 9.018   | VARIANCE | 81.324 |
| KURTOSIS | -.121  | S E KURT | .608    | SKEWNESS | .522   |
| S E SKEW | .309   | RANGE    | 36.364  | MINIMUM  | .000   |
| MAXIMUM  | 36.364 | SUM      | 750.707 |          |        |

# INTEREST -- DURING CLASS

| % OF STUDENTS<br>NEEDING FOLLOW UP | NUMBER OF<br>CLASSES | % OF<br>CLASSES | CUMULATIVE<br>PERCENT |
|------------------------------------|----------------------|-----------------|-----------------------|
|------------------------------------|----------------------|-----------------|-----------------------|

|       |   |     |       |
|-------|---|-----|-------|
| 9.09  | 1 | 1.7 | 1.7   |
| 10.00 | 1 | 1.7 | 3.3   |
| 10.53 | 2 | 3.3 | 6.7   |
| 11.76 | 1 | 1.7 | 8.3   |
| 12.00 | 2 | 3.3 | 11.7  |
| 12.50 | 1 | 1.7 | 13.3  |
| 13.33 | 1 | 1.7 | 15.0  |
| 14.63 | 1 | 1.7 | 16.7  |
| 14.81 | 1 | 1.7 | 18.3  |
| 15.00 | 1 | 1.7 | 20.0  |
| 16.00 | 1 | 1.7 | 21.7  |
| 16.67 | 1 | 1.7 | 23.3  |
| 17.65 | 1 | 1.7 | 25.0  |
| 18.18 | 1 | 1.7 | 26.7  |
| 19.05 | 1 | 1.7 | 28.3  |
| 20.00 | 2 | 3.3 | 31.7  |
| 20.83 | 1 | 1.7 | 33.3  |
| 21.74 | 1 | 1.7 | 35.0  |
| 22.22 | 1 | 1.7 | 36.7  |
| 22.73 | 3 | 5.0 | 41.7  |
| 23.53 | 2 | 3.3 | 45.0  |
| 23.81 | 2 | 3.3 | 48.3  |
| 24.14 | 1 | 1.7 | 50.0  |
| 25.00 | 5 | 8.3 | 58.3  |
| 26.32 | 1 | 1.7 | 60.0  |
| 27.27 | 1 | 1.7 | 61.7  |
| 28.57 | 2 | 3.3 | 65.0  |
| 29.41 | 1 | 1.7 | 66.7  |
| 29.63 | 1 | 1.7 | 68.3  |
| 30.00 | 1 | 1.7 | 70.0  |
| 30.43 | 2 | 3.3 | 73.3  |
| 31.25 | 1 | 1.7 | 75.0  |
| 31.58 | 2 | 3.3 | 78.3  |
| 33.33 | 1 | 1.7 | 80.0  |
| 34.62 | 1 | 1.7 | 81.7  |
| 36.00 | 2 | 3.3 | 85.0  |
| 37.50 | 1 | 1.7 | 86.7  |
| 38.46 | 1 | 1.7 | 88.3  |
| 39.13 | 1 | 1.7 | 90.0  |
| 39.29 | 1 | 1.7 | 91.7  |
| 40.00 | 1 | 1.7 | 93.3  |
| 42.11 | 1 | 1.7 | 95.0  |
| 47.37 | 1 | 1.7 | 96.7  |
| 54.17 | 1 | 1.7 | 98.3  |
| 54.55 | 1 | 1.7 | 100.0 |

|       |    |       |
|-------|----|-------|
| TOTAL | 60 | 100.0 |
|-------|----|-------|

|          |        |          |          |          |         |
|----------|--------|----------|----------|----------|---------|
| MEAN     | 25.635 | STD ERR  | 1.361    | MEDIAN   | 24.569  |
| MODE     | 25.000 | STD DEV  | 10.540   | VARIANCE | 111.099 |
| KURTOSIS | .368   | S E KURT | .608     | SKEWNESS | .658    |
| S E SKEW | .309   | RANGE    | 45.455   | MINIMUM  | 9.091   |
| MAXIMUM  | 54.545 | SUM      | 1538.088 |          |         |

CONFIDENCE - DURING CLASS

| % OF STUDENTS<br>NEEDING FOLLOW UP | NUMBER OF<br>CLASSES | % OF<br>CLASSES | CUMULATIVE<br>PERCENT |
|------------------------------------|----------------------|-----------------|-----------------------|
|------------------------------------|----------------------|-----------------|-----------------------|

|       |    |      |       |
|-------|----|------|-------|
| .00   | 12 | 20.0 | 20.0  |
| 2.44  | 1  | 1.7  | 21.7  |
| 3.33  | 1  | 1.7  | 23.3  |
| 4.00  | 2  | 3.3  | 26.7  |
| 4.17  | 1  | 1.7  | 28.3  |
| 4.35  | 3  | 5.0  | 33.3  |
| 4.55  | 3  | 5.0  | 38.3  |
| 5.00  | 2  | 3.3  | 41.7  |
| 5.26  | 2  | 3.3  | 45.0  |
| 5.56  | 1  | 1.7  | 46.7  |
| 5.88  | 3  | 5.0  | 51.7  |
| 6.25  | 1  | 1.7  | 53.3  |
| 6.67  | 1  | 1.7  | 55.0  |
| 7.14  | 2  | 3.3  | 58.3  |
| 7.69  | 1  | 1.7  | 60.0  |
| 8.00  | 2  | 3.3  | 63.3  |
| 8.33  | 3  | 5.0  | 68.3  |
| 9.09  | 2  | 3.3  | 71.7  |
| 10.34 | 1  | 1.7  | 73.3  |
| 10.53 | 2  | 3.3  | 76.7  |
| 11.11 | 1  | 1.7  | 78.3  |
| 12.00 | 1  | 1.7  | 80.0  |
| 12.50 | 1  | 1.7  | 81.7  |
| 14.29 | 1  | 1.7  | 83.3  |
| 15.00 | 1  | 1.7  | 85.0  |
| 15.79 | 1  | 1.7  | 86.7  |
| 17.39 | 1  | 1.7  | 88.3  |
| 17.86 | 1  | 1.7  | 90.0  |
| 18.18 | 1  | 1.7  | 91.7  |
| 18.75 | 1  | 1.7  | 93.3  |
| 20.00 | 1  | 1.7  | 95.0  |
| 23.08 | 1  | 1.7  | 96.7  |
| 23.53 | 1  | 1.7  | 98.3  |
| 29.17 | 1  | 1.7  | 100.0 |

|       |    |       |
|-------|----|-------|
| TOTAL | 60 | 100.0 |
|-------|----|-------|

|          |        |          |         |          |        |
|----------|--------|----------|---------|----------|--------|
| MEAN     | 7.708  | STD ERR  | .870    | MEDIAN   | 5.882  |
| MODE     | .000   | STD DEV  | 6.737   | VARIANCE | 45.391 |
| KURTOSIS | .983   | S E KURT | .608    | SKEWNESS | 1.095  |
| S E SKEW | .309   | RANGE    | 29.167  | MINIMUM  | .000   |
| MAXIMUM  | 29.167 | SUM      | 462.461 |          |        |

# ANXIETY -- DURING CLASS

| % OF STUDENTS<br>NEEDING FOLLOW UP | NUMBER OF<br>CLASSES | % OF<br>CLASSES | CUMULATIVE<br>PERCENT |
|------------------------------------|----------------------|-----------------|-----------------------|
|------------------------------------|----------------------|-----------------|-----------------------|

|       |   |     |       |
|-------|---|-----|-------|
| .00   | 1 | 1.7 | 1.7   |
| 3.57  | 1 | 1.7 | 3.3   |
| 3.70  | 1 | 1.7 | 5.0   |
| 5.26  | 1 | 1.7 | 6.7   |
| 5.88  | 3 | 5.0 | 11.7  |
| 9.09  | 1 | 1.7 | 13.3  |
| 9.52  | 2 | 3.3 | 16.7  |
| 10.00 | 1 | 1.7 | 18.3  |
| 10.71 | 1 | 1.7 | 20.0  |
| 11.11 | 1 | 1.7 | 21.7  |
| 11.54 | 1 | 1.7 | 23.3  |
| 12.00 | 2 | 3.3 | 26.7  |
| 12.50 | 1 | 1.7 | 28.3  |
| 13.33 | 1 | 1.7 | 30.0  |
| 13.64 | 2 | 3.3 | 33.3  |
| 14.29 | 1 | 1.7 | 35.0  |
| 15.00 | 1 | 1.7 | 36.7  |
| 15.79 | 1 | 1.7 | 38.3  |
| 16.00 | 1 | 1.7 | 40.0  |
| 16.67 | 2 | 3.3 | 43.3  |
| 18.42 | 1 | 1.7 | 45.0  |
| 18.52 | 1 | 1.7 | 46.7  |
| 19.05 | 1 | 1.7 | 48.3  |
| 20.00 | 3 | 5.0 | 53.3  |
| 20.83 | 1 | 1.7 | 55.0  |
| 21.05 | 1 | 1.7 | 56.7  |
| 22.73 | 2 | 3.3 | 60.0  |
| 23.53 | 1 | 1.7 | 61.7  |
| 25.00 | 5 | 8.3 | 70.0  |
| 26.09 | 4 | 6.7 | 76.7  |
| 26.32 | 2 | 3.3 | 80.0  |
| 26.83 | 1 | 1.7 | 81.7  |
| 29.17 | 1 | 1.7 | 83.3  |
| 31.25 | 1 | 1.7 | 85.0  |
| 31.58 | 1 | 1.7 | 86.7  |
| 31.82 | 1 | 1.7 | 88.3  |
| 35.29 | 1 | 1.7 | 90.0  |
| 38.46 | 1 | 1.7 | 91.7  |
| 40.00 | 1 | 1.7 | 93.3  |
| 41.38 | 1 | 1.7 | 95.0  |
| 44.00 | 1 | 1.7 | 96.7  |
| 45.00 | 1 | 1.7 | 98.3  |
| 45.45 | 1 | 1.7 | 100.0 |

|       |       |       |
|-------|-------|-------|
| TOTAL | ----- | ----- |
|       | 60    | 100.0 |

|          |        |          |          |          |         |
|----------|--------|----------|----------|----------|---------|
| MEAN     | 20.371 | STD ERR  | 1.410    | MEDIAN   | 20.000  |
| MODE     | 25.000 | STD DEV  | 10.924   | VARIANCE | 119.328 |
| KURTOSIS | -.189  | S E KURT | .608     | SKEWNESS | .480    |
| S E SKEW | .309   | RANGE    | 45.455   | MINIMUM  | .000    |
| MAXIMUM  | 45.455 | SUM      | 1222.271 |          |         |

# INTERNAL LEARNING GOALS -- DURING CLASS

| % OF STUDENTS<br>NEEDING FOLLOW UP | NUMBER OF<br>CLASSES | % OF<br>CLASSES | CUMULATIVE<br>PERCENT |
|------------------------------------|----------------------|-----------------|-----------------------|
|------------------------------------|----------------------|-----------------|-----------------------|

|       |   |     |       |
|-------|---|-----|-------|
| .00   | 1 | 1.7 | 1.7   |
| 4.00  | 1 | 1.7 | 3.3   |
| 4.17  | 1 | 1.7 | 5.0   |
| 5.88  | 3 | 5.0 | 10.0  |
| 6.67  | 1 | 1.7 | 11.7  |
| 7.41  | 1 | 1.7 | 13.3  |
| 9.09  | 1 | 1.7 | 15.0  |
| 9.52  | 1 | 1.7 | 16.7  |
| 9.76  | 1 | 1.7 | 18.3  |
| 10.00 | 3 | 5.0 | 23.3  |
| 10.71 | 2 | 3.3 | 26.7  |
| 12.50 | 2 | 3.3 | 30.0  |
| 13.04 | 1 | 1.7 | 31.7  |
| 13.33 | 1 | 1.7 | 33.3  |
| 13.64 | 1 | 1.7 | 35.0  |
| 13.89 | 1 | 1.7 | 36.7  |
| 14.29 | 3 | 5.0 | 41.7  |
| 15.00 | 1 | 1.7 | 43.3  |
| 15.79 | 2 | 3.3 | 46.7  |
| 16.00 | 1 | 1.7 | 48.3  |
| 16.67 | 3 | 5.0 | 53.3  |
| 17.39 | 2 | 3.3 | 56.7  |
| 17.65 | 2 | 3.3 | 60.0  |
| 18.18 | 2 | 3.3 | 63.3  |
| 20.00 | 2 | 3.3 | 66.7  |
| 20.83 | 1 | 1.7 | 68.3  |
| 21.05 | 1 | 1.7 | 70.0  |
| 21.74 | 1 | 1.7 | 71.7  |
| 22.73 | 3 | 5.0 | 76.7  |
| 24.00 | 2 | 3.3 | 80.0  |
| 24.14 | 1 | 1.7 | 81.7  |
| 25.00 | 2 | 3.3 | 85.0  |
| 26.32 | 2 | 3.3 | 88.3  |
| 26.92 | 1 | 1.7 | 90.0  |
| 28.57 | 1 | 1.7 | 91.7  |
| 28.95 | 1 | 1.7 | 93.3  |
| 30.77 | 1 | 1.7 | 95.0  |
| 33.33 | 1 | 1.7 | 96.7  |
| 36.84 | 1 | 1.7 | 98.3  |
| 40.74 | 1 | 1.7 | 100.0 |

|       |    |       |
|-------|----|-------|
| TOTAL | 60 | 100.0 |
|-------|----|-------|

|          |        |          |          |          |        |
|----------|--------|----------|----------|----------|--------|
| MEAN     | 17.219 | STD ERR  | 1.079    | MEDIAN   | 16.667 |
| MODE     | 5.882  | STD DEV  | 8.357    | VARIANCE | 69.840 |
| KURTOSIS | .206   | S E KURT | .608     | SKEWNESS | .470   |
| S E SKEW | .309   | RANGE    | 40.741   | MINIMUM  | .000   |
| MAXIMUM  | 40.741 | SUM      | 1033.169 |          |        |

# EXTERNAL PERFORMANCE GOALS -- DURING CLASS

| % OF STUDENTS<br>NEEDING FOLLOW UP | NUMBER OF<br>CLASSES | % OF<br>CLASSES | CUMULATIVE<br>PERCENT |
|------------------------------------|----------------------|-----------------|-----------------------|
|------------------------------------|----------------------|-----------------|-----------------------|

|       |   |     |       |
|-------|---|-----|-------|
| 11.54 | 1 | 1.7 | 1.7   |
| 15.79 | 2 | 3.3 | 5.0   |
| 20.00 | 1 | 1.7 | 6.7   |
| 20.83 | 1 | 1.7 | 8.3   |
| 24.00 | 2 | 3.3 | 11.7  |
| 25.00 | 4 | 6.7 | 18.3  |
| 26.32 | 1 | 1.7 | 20.0  |
| 29.17 | 1 | 1.7 | 21.7  |
| 30.43 | 1 | 1.7 | 23.3  |
| 33.33 | 2 | 3.3 | 26.7  |
| 34.48 | 1 | 1.7 | 28.3  |
| 34.78 | 1 | 1.7 | 30.0  |
| 35.29 | 1 | 1.7 | 31.7  |
| 35.71 | 2 | 3.3 | 35.0  |
| 36.00 | 1 | 1.7 | 36.7  |
| 36.36 | 1 | 1.7 | 38.3  |
| 38.46 | 1 | 1.7 | 40.0  |
| 40.00 | 4 | 6.7 | 46.7  |
| 40.74 | 1 | 1.7 | 48.3  |
| 41.18 | 2 | 3.3 | 51.7  |
| 41.67 | 1 | 1.7 | 53.3  |
| 42.11 | 2 | 3.3 | 56.7  |
| 42.86 | 1 | 1.7 | 58.3  |
| 43.75 | 1 | 1.7 | 60.0  |
| 45.45 | 1 | 1.7 | 61.7  |
| 46.43 | 1 | 1.7 | 63.3  |
| 46.67 | 2 | 3.3 | 66.7  |
| 47.06 | 1 | 1.7 | 68.3  |
| 47.22 | 1 | 1.7 | 70.0  |
| 47.37 | 1 | 1.7 | 71.7  |
| 48.00 | 1 | 1.7 | 73.3  |
| 50.00 | 3 | 5.0 | 78.3  |
| 51.85 | 1 | 1.7 | 80.0  |
| 52.00 | 1 | 1.7 | 81.7  |
| 52.38 | 1 | 1.7 | 83.3  |
| 52.63 | 1 | 1.7 | 85.0  |
| 56.25 | 1 | 1.7 | 86.7  |
| 56.52 | 1 | 1.7 | 88.3  |
| 57.14 | 1 | 1.7 | 90.0  |
| 59.09 | 1 | 1.7 | 91.7  |
| 60.98 | 1 | 1.7 | 93.3  |
| 63.64 | 1 | 1.7 | 95.0  |
| 64.71 | 1 | 1.7 | 96.7  |
| 68.18 | 1 | 1.7 | 98.3  |
| 73.91 | 1 | 1.7 | 100.0 |

|       |    |       |
|-------|----|-------|
| TOTAL | 60 | 100.0 |
|-------|----|-------|

|          |        |          |          |          |         |
|----------|--------|----------|----------|----------|---------|
| MEAN     | 41.018 | STD ERR  | 1.746    | MEDIAN   | 41.176  |
| MODE     | 25.000 | STD DEV  | 13.527   | VARIANCE | 182.985 |
| KURTOSIS | -.200  | S E KURT | .608     | SKEWNESS | .039    |
| S E SKEW | .309   | RANGE    | 62.375   | MINIMUM  | 11.538  |
| MAXIMUM  | 73.913 | SUM      | 2461.074 |          |         |

# INTERNAL STABLE CONTROLLABLE -- DURING CLASS

| % OF STUDENTS<br>NEEDING FOLLOW UP | NUMBER OF<br>CLASSES | % OF<br>CLASSES | CUMULATIVE<br>PERCENT |
|------------------------------------|----------------------|-----------------|-----------------------|
|------------------------------------|----------------------|-----------------|-----------------------|

|       |    |      |       |
|-------|----|------|-------|
| .00   | 10 | 16.7 | 16.7  |
| 4.17  | 2  | 3.3  | 20.0  |
| 4.35  | 2  | 3.3  | 23.3  |
| 4.55  | 1  | 1.7  | 25.0  |
| 5.00  | 1  | 1.7  | 26.7  |
| 5.26  | 1  | 1.7  | 28.3  |
| 5.56  | 1  | 1.7  | 30.0  |
| 5.88  | 2  | 3.3  | 33.3  |
| 6.25  | 1  | 1.7  | 35.0  |
| 6.67  | 1  | 1.7  | 36.7  |
| 7.41  | 1  | 1.7  | 38.3  |
| 8.00  | 1  | 1.7  | 40.0  |
| 8.33  | 1  | 1.7  | 41.7  |
| 9.09  | 3  | 5.0  | 46.7  |
| 9.52  | 2  | 3.3  | 50.0  |
| 10.00 | 1  | 1.7  | 51.7  |
| 10.53 | 2  | 3.3  | 55.0  |
| 10.71 | 4  | 6.7  | 61.7  |
| 11.11 | 1  | 1.7  | 63.3  |
| 12.00 | 2  | 3.3  | 66.7  |
| 12.50 | 4  | 6.7  | 73.3  |
| 13.04 | 1  | 1.7  | 75.0  |
| 13.16 | 1  | 1.7  | 76.7  |
| 13.64 | 2  | 3.3  | 80.0  |
| 13.79 | 1  | 1.7  | 81.7  |
| 15.00 | 1  | 1.7  | 83.3  |
| 15.38 | 1  | 1.7  | 85.0  |
| 15.79 | 1  | 1.7  | 86.7  |
| 16.00 | 1  | 1.7  | 88.3  |
| 19.05 | 1  | 1.7  | 90.0  |
| 19.23 | 1  | 1.7  | 91.7  |
| 20.00 | 1  | 1.7  | 93.3  |
| 21.05 | 1  | 1.7  | 95.0  |
| 22.22 | 1  | 1.7  | 96.7  |
| 26.32 | 1  | 1.7  | 98.3  |
| 27.27 | 1  | 1.7  | 100.0 |

|       |    |       |
|-------|----|-------|
| TOTAL | 60 | 100.0 |
|-------|----|-------|

|          |        |          |         |          |        |
|----------|--------|----------|---------|----------|--------|
| MEAN     | 9.596  | STD ERR  | .860    | MEDIAN   | 9.762  |
| MODE     | .000   | STD DEV  | 6.662   | VARIANCE | 44.376 |
| KURTOSIS | .117   | S E KURT | .608    | SKEWNESS | .466   |
| S E SKEW | .309   | RANGE    | 27.273  | MINIMUM  | .000   |
| MAXIMUM  | 27.273 | SUM      | 575.740 |          |        |

## EXTERNAL STABLE UNCONTROLLABLE -- DURING CLASS

| % OF STUDENTS<br>NEEDING FOLLOW UP | NUMBER OF<br>CLASSES | % OF<br>CLASSES | CUMULATIVE<br>PERCENT |
|------------------------------------|----------------------|-----------------|-----------------------|
| .00                                | 1                    | 1.7             | 1.7                   |
| 3.70                               | 1                    | 1.7             | 3.3                   |
| 4.00                               | 1                    | 1.7             | 5.0                   |
| 5.26                               | 1                    | 1.7             | 6.7                   |
| 7.14                               | 1                    | 1.7             | 8.3                   |
| 8.00                               | 1                    | 1.7             | 10.0                  |
| 8.33                               | 2                    | 3.3             | 13.3                  |
| 8.70                               | 1                    | 1.7             | 15.0                  |
| 9.52                               | 1                    | 1.7             | 16.7                  |
| 10.00                              | 1                    | 1.7             | 18.3                  |
| 10.53                              | 1                    | 1.7             | 20.0                  |
| 11.76                              | 1                    | 1.7             | 21.7                  |
| 12.00                              | 1                    | 1.7             | 23.3                  |
| 12.50                              | 1                    | 1.7             | 25.0                  |
| 13.04                              | 1                    | 1.7             | 26.7                  |
| 13.33                              | 2                    | 3.3             | 30.0                  |
| 13.64                              | 1                    | 1.7             | 31.7                  |
| 14.29                              | 1                    | 1.7             | 33.3                  |
| 14.81                              | 1                    | 1.7             | 35.0                  |
| 15.38                              | 1                    | 1.7             | 36.7                  |
| 15.79                              | 1                    | 1.7             | 38.3                  |
| 16.00                              | 2                    | 3.3             | 41.7                  |
| 16.67                              | 2                    | 3.3             | 45.0                  |
| 17.07                              | 1                    | 1.7             | 46.7                  |
| 17.65                              | 2                    | 3.3             | 50.0                  |
| 18.18                              | 2                    | 3.3             | 53.3                  |
| 18.52                              | 1                    | 1.7             | 55.0                  |
| 19.05                              | 1                    | 1.7             | 56.7                  |
| 19.23                              | 1                    | 1.7             | 58.3                  |
| 20.00                              | 4                    | 6.7             | 65.0                  |
| 20.69                              | 1                    | 1.7             | 66.7                  |
| 21.05                              | 1                    | 1.7             | 68.3                  |
| 21.74                              | 1                    | 1.7             | 70.0                  |
| 23.53                              | 1                    | 1.7             | 71.7                  |
| 25.00                              | 6                    | 10.0            | 81.7                  |
| 27.27                              | 2                    | 3.3             | 85.0                  |
| 31.25                              | 1                    | 1.7             | 86.7                  |
| 33.33                              | 1                    | 1.7             | 88.3                  |
| 34.78                              | 1                    | 1.7             | 90.0                  |
| 35.29                              | 1                    | 1.7             | 91.7                  |
| 36.84                              | 1                    | 1.7             | 93.3                  |
| 38.10                              | 1                    | 1.7             | 95.0                  |
| 40.91                              | 1                    | 1.7             | 96.7                  |
| 50.00                              | 1                    | 1.7             | 98.3                  |
| 52.63                              | 1                    | 1.7             | 100.0                 |
| -----                              |                      |                 |                       |
| TOTAL                              | 60                   | 100.0           |                       |

|          |        |          |          |          |         |
|----------|--------|----------|----------|----------|---------|
| MEAN     | 19.483 | STD ERR  | 1.378    | MEDIAN   | 17.914  |
| MODE     | 25.000 | STD DEV  | 10.675   | VARIANCE | 113.946 |
| KURTOSIS | 1.341  | S E KURT | .608     | SKEWNESS | 1.004   |
| S E SKEW | .309   | RANGE    | 52.632   | MINIMUM  | .000    |
| MAXIMUM  | 52.632 | SUM      | 1168.964 |          |         |

UNKNOWN CONTROL -- DURING CLASS

| % OF STUDENTS<br>NEEDING FOLLOW UP | NUMBER OF<br>CLASSES | % OF<br>CLASSES | CUMULATIVE<br>PERCENT |
|------------------------------------|----------------------|-----------------|-----------------------|
| .00                                | 12                   | 20.0            | 20.0                  |
| 2.63                               | 1                    | 1.7             | 21.7                  |
| 3.33                               | 1                    | 1.7             | 23.3                  |
| 3.45                               | 1                    | 1.7             | 25.0                  |
| 3.57                               | 1                    | 1.7             | 26.7                  |
| 3.85                               | 1                    | 1.7             | 28.3                  |
| 4.00                               | 2                    | 3.3             | 31.7                  |
| 4.55                               | 3                    | 5.0             | 36.7                  |
| 4.76                               | 2                    | 3.3             | 40.0                  |
| 5.00                               | 1                    | 1.7             | 41.7                  |
| 5.88                               | 1                    | 1.7             | 43.3                  |
| 6.25                               | 1                    | 1.7             | 45.0                  |
| 7.41                               | 1                    | 1.7             | 46.7                  |
| 8.00                               | 1                    | 1.7             | 48.3                  |
| 8.33                               | 1                    | 1.7             | 50.0                  |
| 9.09                               | 3                    | 5.0             | 55.0                  |
| 9.52                               | 1                    | 1.7             | 56.7                  |
| 9.76                               | 1                    | 1.7             | 58.3                  |
| 10.00                              | 1                    | 1.7             | 60.0                  |
| 10.53                              | 3                    | 5.0             | 65.0                  |
| 10.71                              | 1                    | 1.7             | 66.7                  |
| 11.76                              | 2                    | 3.3             | 70.0                  |
| 12.50                              | 1                    | 1.7             | 71.7                  |
| 13.04                              | 1                    | 1.7             | 73.3                  |
| 13.64                              | 1                    | 1.7             | 75.0                  |
| 14.29                              | 2                    | 3.3             | 78.3                  |
| 14.81                              | 1                    | 1.7             | 80.0                  |
| 15.79                              | 1                    | 1.7             | 81.7                  |
| 16.00                              | 1                    | 1.7             | 83.3                  |
| 16.67                              | 1                    | 1.7             | 85.0                  |
| 18.75                              | 2                    | 3.3             | 88.3                  |
| 20.00                              | 1                    | 1.7             | 90.0                  |
| 21.74                              | 3                    | 5.0             | 95.0                  |
| 23.08                              | 1                    | 1.7             | 96.7                  |
| 26.32                              | 1                    | 1.7             | 98.3                  |
| 29.17                              | 1                    | 1.7             | 100.0                 |
| -----                              |                      |                 |                       |
| TOTAL                              | 60                   | 100.0           |                       |

|          |        |          |         |          |        |
|----------|--------|----------|---------|----------|--------|
| MEAN     | 9.059  | STD ERR  | .971    | MEDIAN   | 8.712  |
| MODE     | .000   | STD DEV  | 7.521   | VARIANCE | 56.567 |
| KURTOSIS | -.218  | S E KURT | .608    | SKEWNESS | .676   |
| S E SKEW | .309   | RANGE    | 29.167  | MINIMUM  | .000   |
| MAXIMUM  | 29.167 | SUM      | 543.538 |          |        |

VALUE -- WITH OTHER STUDENTS

| % OF STUDENTS<br>NEEDING FOLLOW UP | NUMBER OF<br>CLASSES | % OF<br>CLASSES | CUMULATIVE<br>PERCENT |
|------------------------------------|----------------------|-----------------|-----------------------|
| .00                                | 2                    | 3.3             | 3.3                   |
| 4.55                               | 1                    | 1.7             | 5.0                   |
| 4.76                               | 1                    | 1.7             | 6.7                   |
| 6.25                               | 2                    | 3.3             | 10.0                  |
| 11.76                              | 2                    | 3.3             | 13.3                  |
| 12.00                              | 1                    | 1.7             | 15.0                  |
| 13.64                              | 2                    | 3.3             | 18.3                  |
| 14.29                              | 2                    | 3.3             | 21.7                  |
| 14.81                              | 1                    | 1.7             | 23.3                  |
| 15.00                              | 1                    | 1.7             | 25.0                  |
| 15.79                              | 1                    | 1.7             | 26.7                  |
| 17.24                              | 1                    | 1.7             | 28.3                  |
| 17.65                              | 2                    | 3.3             | 31.7                  |
| 19.51                              | 1                    | 1.7             | 33.3                  |
| 20.00                              | 1                    | 1.7             | 35.0                  |
| 20.83                              | 1                    | 1.7             | 36.7                  |
| 21.05                              | 1                    | 1.7             | 38.3                  |
| 21.43                              | 1                    | 1.7             | 40.0                  |
| 21.74                              | 2                    | 3.3             | 43.3                  |
| 23.33                              | 1                    | 1.7             | 45.0                  |
| 24.00                              | 2                    | 3.3             | 48.3                  |
| 25.00                              | 2                    | 3.3             | 51.7                  |
| 26.09                              | 1                    | 1.7             | 53.3                  |
| 26.32                              | 1                    | 1.7             | 55.0                  |
| 26.67                              | 1                    | 1.7             | 56.7                  |
| 27.27                              | 2                    | 3.3             | 60.0                  |
| 27.78                              | 1                    | 1.7             | 61.7                  |
| 28.00                              | 3                    | 5.0             | 66.7                  |
| 28.57                              | 2                    | 3.3             | 70.0                  |
| 29.17                              | 1                    | 1.7             | 71.7                  |
| 29.63                              | 1                    | 1.7             | 73.3                  |
| 30.77                              | 1                    | 1.7             | 75.0                  |
| 31.58                              | 1                    | 1.7             | 76.7                  |
| 31.82                              | 1                    | 1.7             | 78.3                  |
| 33.33                              | 2                    | 3.3             | 81.7                  |
| 34.62                              | 1                    | 1.7             | 83.3                  |
| 34.78                              | 1                    | 1.7             | 85.0                  |
| 35.00                              | 1                    | 1.7             | 86.7                  |
| 36.84                              | 1                    | 1.7             | 88.3                  |
| 37.50                              | 2                    | 3.3             | 91.7                  |
| 44.44                              | 1                    | 1.7             | 93.3                  |
| 45.45                              | 1                    | 1.7             | 95.0                  |
| 45.83                              | 1                    | 1.7             | 96.7                  |
| 52.63                              | 1                    | 1.7             | 98.3                  |
| 55.26                              | 1                    | 1.7             | 100.0                 |
| -----                              |                      |                 |                       |
| TOTAL                              | 60                   | 100.0           |                       |

|          |        |          |          |          |         |
|----------|--------|----------|----------|----------|---------|
| MEAN     | 24.350 | STD ERR  | 1.538    | MEDIAN   | 25.000  |
| MODE     | 28.000 | STD DEV  | 11.914   | VARIANCE | 141.940 |
| KURTOSIS | .231   | S E KURT | .608     | SKEWNESS | .235    |
| S E SKEW | .309   | RANGE    | 55.263   | MINIMUM  | .000    |
| MAXIMUM  | 55.263 | SUM      | 1460.991 |          |         |

# INTEREST -- WITH OTHER STUDENTS

| % OF STUDENTS<br>NEEDING FOLLOW UP | NUMBER OF<br>CLASSES | % OF<br>CLASSES | CUMULATIVE<br>PERCENT |
|------------------------------------|----------------------|-----------------|-----------------------|
|------------------------------------|----------------------|-----------------|-----------------------|

|       |   |     |       |
|-------|---|-----|-------|
| .00   | 1 | 1.7 | 1.7   |
| 4.00  | 1 | 1.7 | 3.3   |
| 4.17  | 1 | 1.7 | 5.0   |
| 4.35  | 1 | 1.7 | 6.7   |
| 4.55  | 1 | 1.7 | 8.3   |
| 4.76  | 1 | 1.7 | 10.0  |
| 5.00  | 1 | 1.7 | 11.7  |
| 5.26  | 1 | 1.7 | 13.3  |
| 5.88  | 3 | 5.0 | 18.3  |
| 6.25  | 1 | 1.7 | 20.0  |
| 7.32  | 1 | 1.7 | 21.7  |
| 8.00  | 1 | 1.7 | 23.3  |
| 9.09  | 1 | 1.7 | 25.0  |
| 9.52  | 1 | 1.7 | 26.7  |
| 10.00 | 1 | 1.7 | 28.3  |
| 11.54 | 1 | 1.7 | 30.0  |
| 11.76 | 1 | 1.7 | 31.7  |
| 14.29 | 1 | 1.7 | 33.3  |
| 14.81 | 1 | 1.7 | 35.0  |
| 15.38 | 1 | 1.7 | 36.7  |
| 15.79 | 2 | 3.3 | 40.0  |
| 17.24 | 1 | 1.7 | 41.7  |
| 17.39 | 1 | 1.7 | 43.3  |
| 17.65 | 1 | 1.7 | 45.0  |
| 17.86 | 1 | 1.7 | 46.7  |
| 18.18 | 2 | 3.3 | 50.0  |
| 18.75 | 1 | 1.7 | 51.7  |
| 19.44 | 1 | 1.7 | 53.3  |
| 20.00 | 4 | 6.7 | 60.0  |
| 20.83 | 2 | 3.3 | 63.3  |
| 21.05 | 2 | 3.3 | 66.7  |
| 21.43 | 1 | 1.7 | 68.3  |
| 22.22 | 1 | 1.7 | 70.0  |
| 22.73 | 2 | 3.3 | 73.3  |
| 24.00 | 2 | 3.3 | 76.7  |
| 25.00 | 2 | 3.3 | 80.0  |
| 26.09 | 1 | 1.7 | 81.7  |
| 26.32 | 2 | 3.3 | 85.0  |
| 26.67 | 1 | 1.7 | 86.7  |
| 27.27 | 1 | 1.7 | 88.3  |
| 28.57 | 2 | 3.3 | 91.7  |
| 29.17 | 1 | 1.7 | 93.3  |
| 30.43 | 1 | 1.7 | 95.0  |
| 31.25 | 1 | 1.7 | 96.7  |
| 33.33 | 1 | 1.7 | 98.3  |
| 36.00 | 1 | 1.7 | 100.0 |

|       |       |       |
|-------|-------|-------|
| TOTAL | ----- | ----- |
|       | 60    | 100.0 |

|          |        |          |          |          |        |
|----------|--------|----------|----------|----------|--------|
| MEAN     | 17.414 | STD ERR  | 1.139    | MEDIAN   | 18.466 |
| MODE     | 20.000 | STD DEV  | 8.825    | VARIANCE | 77.878 |
| KURTOSIS | -.896  | S E KURT | .608     | SKEWNESS | -.107  |
| S E SKEW | .309   | RANGE    | 36.000   | MINIMUM  | .000   |
| MAXIMUM  | 36.000 | SUM      | 1044.839 |          |        |

CONFIDENCE -- WITH OTHER STUDENTS

| % OF STUDENTS<br>NEEDING FOLLOW UP | NUMBER OF<br>CLASSES | % OF<br>CLASSES | CUMULATIVE<br>PERCENT |
|------------------------------------|----------------------|-----------------|-----------------------|
| .00                                | 10                   | 16.7            | 16.7                  |
| 2.78                               | 1                    | 1.7             | 18.3                  |
| 3.57                               | 1                    | 1.7             | 20.0                  |
| 3.70                               | 1                    | 1.7             | 21.7                  |
| 4.00                               | 1                    | 1.7             | 23.3                  |
| 4.17                               | 1                    | 1.7             | 25.0                  |
| 4.35                               | 2                    | 3.3             | 28.3                  |
| 4.88                               | 1                    | 1.7             | 30.0                  |
| 5.00                               | 2                    | 3.3             | 33.3                  |
| 5.26                               | 2                    | 3.3             | 36.7                  |
| 5.88                               | 1                    | 1.7             | 38.3                  |
| 6.25                               | 1                    | 1.7             | 40.0                  |
| 6.67                               | 2                    | 3.3             | 43.3                  |
| 7.14                               | 2                    | 3.3             | 46.7                  |
| 7.41                               | 1                    | 1.7             | 48.3                  |
| 7.69                               | 1                    | 1.7             | 50.0                  |
| 8.00                               | 2                    | 3.3             | 53.3                  |
| 8.33                               | 3                    | 5.0             | 58.3                  |
| 8.70                               | 2                    | 3.3             | 61.7                  |
| 9.09                               | 1                    | 1.7             | 63.3                  |
| 9.52                               | 1                    | 1.7             | 65.0                  |
| 10.00                              | 1                    | 1.7             | 66.7                  |
| 10.34                              | 1                    | 1.7             | 68.3                  |
| 10.53                              | 3                    | 5.0             | 73.3                  |
| 11.54                              | 1                    | 1.7             | 75.0                  |
| 11.76                              | 1                    | 1.7             | 76.7                  |
| 12.50                              | 2                    | 3.3             | 80.0                  |
| 13.64                              | 3                    | 5.0             | 85.0                  |
| 15.79                              | 1                    | 1.7             | 86.7                  |
| 16.00                              | 1                    | 1.7             | 88.3                  |
| 16.67                              | 1                    | 1.7             | 90.0                  |
| 17.65                              | 1                    | 1.7             | 91.7                  |
| 17.86                              | 1                    | 1.7             | 93.3                  |
| 18.18                              | 1                    | 1.7             | 95.0                  |
| 20.00                              | 1                    | 1.7             | 96.7                  |
| 22.73                              | 2                    | 3.3             | 100.0                 |
| -----                              |                      |                 |                       |
| TOTAL                              | 60                   | 100.0           |                       |

|          |        |          |         |          |        |
|----------|--------|----------|---------|----------|--------|
| MEAN     | 8.215  | STD ERR  | .767    | MEDIAN   | 7.846  |
| MODE     | .000   | STD DEV  | 5.942   | VARIANCE | 35.307 |
| KURTOSIS | -.163  | S E KURT | .608    | SKEWNESS | .536   |
| S E SKEW | .309   | RANGE    | 22.727  | MINIMUM  | .000   |
| MAXIMUM  | 22.727 | SUM      | 492.909 |          |        |

# ANXIETY -- WITH OTHER STUDENTS

| % OF STUDENTS<br>NEEDING FOLLOW UP | NUMBER OF<br>CLASSES | % OF<br>CLASSES | CUMULATIVE<br>PERCENT |
|------------------------------------|----------------------|-----------------|-----------------------|
| .00                                | 2                    | 3.3             | 3.3                   |
| 2.63                               | 1                    | 1.7             | 5.0                   |
| 3.57                               | 1                    | 1.7             | 6.7                   |
| 4.00                               | 1                    | 1.7             | 8.3                   |
| 4.17                               | 2                    | 3.3             | 11.7                  |
| 4.55                               | 1                    | 1.7             | 13.3                  |
| 4.76                               | 1                    | 1.7             | 15.0                  |
| 5.00                               | 3                    | 5.0             | 20.0                  |
| 5.56                               | 1                    | 1.7             | 21.7                  |
| 5.88                               | 1                    | 1.7             | 23.3                  |
| 7.69                               | 1                    | 1.7             | 25.0                  |
| 8.70                               | 1                    | 1.7             | 26.7                  |
| 9.09                               | 3                    | 5.0             | 31.7                  |
| 10.00                              | 2                    | 3.3             | 35.0                  |
| 10.53                              | 2                    | 3.3             | 38.3                  |
| 10.71                              | 2                    | 3.3             | 41.7                  |
| 11.11                              | 1                    | 1.7             | 43.3                  |
| 11.76                              | 2                    | 3.3             | 46.7                  |
| 12.00                              | 2                    | 3.3             | 50.0                  |
| 12.20                              | 1                    | 1.7             | 51.7                  |
| 12.50                              | 2                    | 3.3             | 55.0                  |
| 13.04                              | 2                    | 3.3             | 58.3                  |
| 13.64                              | 2                    | 3.3             | 61.7                  |
| 13.79                              | 1                    | 1.7             | 63.3                  |
| 14.29                              | 3                    | 5.0             | 68.3                  |
| 14.81                              | 1                    | 1.7             | 70.0                  |
| 15.38                              | 1                    | 1.7             | 71.7                  |
| 15.79                              | 2                    | 3.3             | 75.0                  |
| 16.00                              | 2                    | 3.3             | 78.3                  |
| 16.67                              | 1                    | 1.7             | 80.0                  |
| 17.39                              | 1                    | 1.7             | 81.7                  |
| 17.65                              | 1                    | 1.7             | 83.3                  |
| 18.52                              | 1                    | 1.7             | 85.0                  |
| 20.00                              | 1                    | 1.7             | 86.7                  |
| 22.73                              | 1                    | 1.7             | 88.3                  |
| 25.00                              | 3                    | 5.0             | 93.3                  |
| 26.32                              | 1                    | 1.7             | 95.0                  |
| 31.58                              | 1                    | 1.7             | 96.7                  |
| 33.33                              | 1                    | 1.7             | 98.3                  |
| 37.50                              | 1                    | 1.7             | 100.0                 |
| -----                              |                      |                 |                       |
| TOTAL                              | 60                   | 100.0           |                       |

|          |        |          |         |          |        |
|----------|--------|----------|---------|----------|--------|
| MEAN     | 12.945 | STD ERR  | 1.008   | MEDIAN   | 12.098 |
| MODE     | 5.000  | STD DEV  | 7.808   | VARIANCE | 60.970 |
| KURTOSIS | 1.327  | S E KURT | .608    | SKEWNESS | .994   |
| S E SKEW | .309   | RANGE    | 37.500  | MINIMUM  | .000   |
| MAXIMUM  | 37.500 | SUM      | 776.726 |          |        |

# INTERNAL LEARNING GOALS -- WITH OTHER STUDENTS

| % OF STUDENTS<br>NEEDING FOLLOW UP | NUMBER OF<br>CLASSES | % OF<br>CLASSES | CUMULATIVE<br>PERCENT |
|------------------------------------|----------------------|-----------------|-----------------------|
|------------------------------------|----------------------|-----------------|-----------------------|

|       |   |     |       |
|-------|---|-----|-------|
| .00   | 4 | 6.7 | 6.7   |
| 2.44  | 1 | 1.7 | 8.3   |
| 4.00  | 1 | 1.7 | 10.0  |
| 4.35  | 1 | 1.7 | 11.7  |
| 4.55  | 1 | 1.7 | 13.3  |
| 4.76  | 1 | 1.7 | 15.0  |
| 5.00  | 2 | 3.3 | 18.3  |
| 5.26  | 2 | 3.3 | 21.7  |
| 5.88  | 1 | 1.7 | 23.3  |
| 7.69  | 1 | 1.7 | 25.0  |
| 8.70  | 1 | 1.7 | 26.7  |
| 9.09  | 2 | 3.3 | 30.0  |
| 10.00 | 2 | 3.3 | 33.3  |
| 10.34 | 1 | 1.7 | 35.0  |
| 11.11 | 2 | 3.3 | 38.3  |
| 11.76 | 1 | 1.7 | 40.0  |
| 12.00 | 2 | 3.3 | 43.3  |
| 13.04 | 1 | 1.7 | 45.0  |
| 14.29 | 2 | 3.3 | 48.3  |
| 15.00 | 1 | 1.7 | 50.0  |
| 15.38 | 1 | 1.7 | 51.7  |
| 15.79 | 2 | 3.3 | 55.0  |
| 16.00 | 1 | 1.7 | 56.7  |
| 17.65 | 1 | 1.7 | 58.3  |
| 17.86 | 1 | 1.7 | 60.0  |
| 18.18 | 2 | 3.3 | 63.3  |
| 19.05 | 1 | 1.7 | 65.0  |
| 20.00 | 1 | 1.7 | 66.7  |
| 20.83 | 1 | 1.7 | 68.3  |
| 21.05 | 1 | 1.7 | 70.0  |
| 21.43 | 2 | 3.3 | 73.3  |
| 21.74 | 1 | 1.7 | 75.0  |
| 22.73 | 1 | 1.7 | 76.7  |
| 23.53 | 1 | 1.7 | 78.3  |
| 24.00 | 1 | 1.7 | 80.0  |
| 25.00 | 4 | 6.7 | 86.7  |
| 25.93 | 1 | 1.7 | 88.3  |
| 26.32 | 1 | 1.7 | 90.0  |
| 27.27 | 1 | 1.7 | 91.7  |
| 29.17 | 2 | 3.3 | 95.0  |
| 29.63 | 1 | 1.7 | 96.7  |
| 33.33 | 1 | 1.7 | 98.3  |
| 42.11 | 1 | 1.7 | 100.0 |

|       |       |       |
|-------|-------|-------|
| TOTAL | ----- | ----- |
|       | 60    | 100.0 |

|          |        |          |         |          |        |
|----------|--------|----------|---------|----------|--------|
| MEAN     | 15.326 | STD ERR  | 1.217   | MEDIAN   | 15.192 |
| MODE     | .000   | STD DEV  | 9.430   | VARIANCE | 88.925 |
| KURTOSIS | -.297  | S E KURT | .608    | SKEWNESS | .319   |
| S E SKEW | .309   | RANGE    | 42.105  | MINIMUM  | .000   |
| MAXIMUM  | 42.105 | SUM      | 919.553 |          |        |

## EXTERNAL PERFORMANCE GOALS -- WITH OTHER STUDENTS

| % OF STUDENTS<br>NEEDING FOLLOW UP | NUMBER OF<br>CLASSES | % OF<br>CLASSES | CUMULATIVE<br>PERCENT |
|------------------------------------|----------------------|-----------------|-----------------------|
|------------------------------------|----------------------|-----------------|-----------------------|

|       |   |     |       |
|-------|---|-----|-------|
| 3.45  | 1 | 1.7 | 1.7   |
| 3.57  | 1 | 1.7 | 3.3   |
| 4.00  | 1 | 1.7 | 5.0   |
| 4.17  | 1 | 1.7 | 6.7   |
| 4.76  | 1 | 1.7 | 8.3   |
| 5.00  | 2 | 3.3 | 11.7  |
| 5.26  | 1 | 1.7 | 13.3  |
| 5.88  | 2 | 3.3 | 16.7  |
| 6.67  | 2 | 3.3 | 20.0  |
| 7.89  | 1 | 1.7 | 21.7  |
| 8.00  | 3 | 5.0 | 26.7  |
| 8.70  | 1 | 1.7 | 28.3  |
| 9.09  | 1 | 1.7 | 30.0  |
| 10.53 | 1 | 1.7 | 31.7  |
| 10.71 | 1 | 1.7 | 33.3  |
| 11.11 | 1 | 1.7 | 35.0  |
| 11.54 | 1 | 1.7 | 36.7  |
| 12.20 | 1 | 1.7 | 38.3  |
| 12.50 | 2 | 3.3 | 41.7  |
| 13.64 | 1 | 1.7 | 43.3  |
| 14.29 | 1 | 1.7 | 45.0  |
| 14.81 | 1 | 1.7 | 46.7  |
| 15.79 | 1 | 1.7 | 48.3  |
| 16.00 | 1 | 1.7 | 50.0  |
| 17.86 | 2 | 3.3 | 53.3  |
| 18.18 | 1 | 1.7 | 55.0  |
| 19.23 | 1 | 1.7 | 56.7  |
| 20.00 | 4 | 6.7 | 63.3  |
| 20.83 | 1 | 1.7 | 65.0  |
| 21.74 | 1 | 1.7 | 66.7  |
| 22.73 | 1 | 1.7 | 68.3  |
| 23.53 | 2 | 3.3 | 71.7  |
| 23.81 | 1 | 1.7 | 73.3  |
| 25.00 | 2 | 3.3 | 76.7  |
| 25.93 | 2 | 3.3 | 80.0  |
| 29.17 | 1 | 1.7 | 81.7  |
| 29.41 | 1 | 1.7 | 83.3  |
| 30.43 | 1 | 1.7 | 85.0  |
| 31.58 | 2 | 3.3 | 88.3  |
| 31.82 | 1 | 1.7 | 90.0  |
| 33.33 | 1 | 1.7 | 91.7  |
| 34.78 | 1 | 1.7 | 93.3  |
| 36.36 | 1 | 1.7 | 95.0  |
| 40.91 | 1 | 1.7 | 96.7  |
| 50.00 | 1 | 1.7 | 98.3  |
| 52.63 | 1 | 1.7 | 100.0 |

|       |    |       |
|-------|----|-------|
| TOTAL | 60 | 100.0 |
|-------|----|-------|

|          |        |          |          |          |         |
|----------|--------|----------|----------|----------|---------|
| MEAN     | 18.146 | STD ERR  | 1.494    | MEDIAN   | 16.929  |
| MODE     | 20.000 | STD DEV  | 11.569   | VARIANCE | 133.835 |
| KURTOSIS | .574   | S E KURT | .608     | SKEWNESS | .882    |
| S E SKEW | .309   | RANGE    | 49.183   | MINIMUM  | 3.448   |
| MAXIMUM  | 52.632 | SUM      | 1088.759 |          |         |

## INTERNAL STABLE CONTROLLABLE -- WITH OTHER STUDENTS

| % OF STUDENTS<br>NEEDING FOLLOW UP | NUMBER OF<br>CLASSES | % OF<br>CLASSES | CUMULATIVE<br>PERCENT |
|------------------------------------|----------------------|-----------------|-----------------------|
| 9.52                               | 1                    | 1.7             | 1.7                   |
| 10.53                              | 1                    | 1.7             | 3.3                   |
| 18.75                              | 1                    | 1.7             | 5.0                   |
| 20.83                              | 1                    | 1.7             | 6.7                   |
| 21.05                              | 1                    | 1.7             | 8.3                   |
| 22.73                              | 1                    | 1.7             | 10.0                  |
| 26.32                              | 1                    | 1.7             | 11.7                  |
| 29.17                              | 2                    | 3.3             | 15.0                  |
| 29.41                              | 1                    | 1.7             | 16.7                  |
| 29.63                              | 1                    | 1.7             | 18.3                  |
| 30.77                              | 1                    | 1.7             | 20.0                  |
| 31.82                              | 2                    | 3.3             | 23.3                  |
| 33.33                              | 1                    | 1.7             | 25.0                  |
| 34.15                              | 1                    | 1.7             | 26.7                  |
| 34.78                              | 2                    | 3.3             | 30.0                  |
| 35.00                              | 1                    | 1.7             | 31.7                  |
| 36.00                              | 1                    | 1.7             | 33.3                  |
| 36.36                              | 1                    | 1.7             | 35.0                  |
| 36.84                              | 1                    | 1.7             | 36.7                  |
| 37.50                              | 1                    | 1.7             | 38.3                  |
| 38.89                              | 1                    | 1.7             | 40.0                  |
| 39.13                              | 1                    | 1.7             | 41.7                  |
| 39.29                              | 1                    | 1.7             | 43.3                  |
| 39.47                              | 1                    | 1.7             | 45.0                  |
| 40.00                              | 3                    | 5.0             | 50.0                  |
| 41.18                              | 1                    | 1.7             | 51.7                  |
| 42.11                              | 1                    | 1.7             | 53.3                  |
| 42.86                              | 2                    | 3.3             | 56.7                  |
| 43.75                              | 1                    | 1.7             | 58.3                  |
| 44.00                              | 1                    | 1.7             | 60.0                  |
| 45.45                              | 2                    | 3.3             | 63.3                  |
| 46.15                              | 1                    | 1.7             | 65.0                  |
| 46.43                              | 1                    | 1.7             | 66.7                  |
| 46.67                              | 2                    | 3.3             | 70.0                  |
| 47.06                              | 2                    | 3.3             | 73.3                  |
| 47.83                              | 1                    | 1.7             | 75.0                  |
| 48.28                              | 1                    | 1.7             | 76.7                  |
| 50.00                              | 1                    | 1.7             | 78.3                  |
| 52.00                              | 2                    | 3.3             | 81.7                  |
| 52.63                              | 1                    | 1.7             | 83.3                  |
| 52.94                              | 1                    | 1.7             | 85.0                  |
| 55.56                              | 1                    | 1.7             | 86.7                  |
| 57.14                              | 1                    | 1.7             | 88.3                  |
| 58.33                              | 1                    | 1.7             | 90.0                  |
| 59.09                              | 1                    | 1.7             | 91.7                  |
| 60.00                              | 2                    | 3.3             | 95.0                  |
| 65.00                              | 1                    | 1.7             | 96.7                  |
| 67.86                              | 1                    | 1.7             | 98.3                  |
| 75.00                              | 1                    | 1.7             | 100.0                 |
| <hr/>                              |                      |                 |                       |
| TOTAL                              | 60                   | 100.0           |                       |

(Continued)

INTERNAL STABLE CONTROLLABLE -- WITH OTHER STUDENTS  
(Continued)

|          |        |          |          |          |         |
|----------|--------|----------|----------|----------|---------|
| MEAN     | 41.306 | STD ERR  | 1.691    | MEDIAN   | 40.588  |
| MODE     | 40.000 | STD DEV  | 13.100   | VARIANCE | 171.613 |
| KURTOSIS | .361   | S E KURT | .608     | SKEWNESS | -.021   |
| S E SKEW | .309   | RANGE    | 65.476   | MINIMUM  | 9.524   |
| MAXIMUM  | 75.000 | SUM      | 2478.382 |          |         |

## EXTERNAL STABLE UNCONTROLLABLE -- WITH OTHER STUDENTS

| % OF STUDENTS<br>NEEDING FOLLOW UP | NUMBER OF<br>CLASSES | % OF<br>CLASSES | CUMULATIVE<br>PERCENT |
|------------------------------------|----------------------|-----------------|-----------------------|
|------------------------------------|----------------------|-----------------|-----------------------|

|       |   |     |       |
|-------|---|-----|-------|
| .00   | 5 | 8.3 | 8.3   |
| 3.57  | 2 | 3.3 | 11.7  |
| 3.70  | 1 | 1.7 | 13.3  |
| 3.85  | 1 | 1.7 | 15.0  |
| 4.00  | 1 | 1.7 | 16.7  |
| 4.76  | 1 | 1.7 | 18.3  |
| 7.14  | 1 | 1.7 | 20.0  |
| 7.41  | 1 | 1.7 | 21.7  |
| 8.00  | 2 | 3.3 | 25.0  |
| 8.33  | 3 | 5.0 | 30.0  |
| 9.09  | 2 | 3.3 | 33.3  |
| 10.34 | 1 | 1.7 | 35.0  |
| 10.53 | 2 | 3.3 | 38.3  |
| 10.71 | 1 | 1.7 | 40.0  |
| 11.76 | 1 | 1.7 | 41.7  |
| 12.00 | 2 | 3.3 | 45.0  |
| 12.50 | 5 | 8.3 | 53.3  |
| 13.04 | 2 | 3.3 | 56.7  |
| 13.16 | 1 | 1.7 | 58.3  |
| 13.64 | 2 | 3.3 | 61.7  |
| 14.81 | 1 | 1.7 | 63.3  |
| 15.00 | 2 | 3.3 | 66.7  |
| 17.39 | 2 | 3.3 | 70.0  |
| 17.65 | 1 | 1.7 | 71.7  |
| 19.05 | 1 | 1.7 | 73.3  |
| 19.23 | 1 | 1.7 | 75.0  |
| 19.51 | 1 | 1.7 | 76.7  |
| 20.00 | 3 | 5.0 | 81.7  |
| 21.05 | 3 | 5.0 | 86.7  |
| 25.00 | 1 | 1.7 | 88.3  |
| 29.17 | 1 | 1.7 | 90.0  |
| 29.41 | 2 | 3.3 | 93.3  |
| 31.58 | 1 | 1.7 | 95.0  |
| 31.82 | 2 | 3.3 | 98.3  |
| 33.33 | 1 | 1.7 | 100.0 |

|       |    |       |
|-------|----|-------|
| TOTAL | 60 | 100.0 |
|-------|----|-------|

|          |        |          |         |          |        |
|----------|--------|----------|---------|----------|--------|
| MEAN     | 13.730 | STD ERR  | 1.127   | MEDIAN   | 12.500 |
| MODE     | .000   | STD DEV  | 8.727   | VARIANCE | 76.156 |
| KURTOSIS | -.191  | S E KURT | .608    | SKEWNESS | .529   |
| S E SKEW | .309   | RANGE    | 33.333  | MINIMUM  | .000   |
| MAXIMUM  | 33.333 | SUM      | 823.813 |          |        |

UNKNOWN CONTROL -- WITH OTHER STUDENTS

| % OF STUDENTS<br>NEEDING FOLLOW UP | NUMBER OF<br>CLASSES | % OF<br>CLASSES | CUMULATIVE<br>PERCENT |
|------------------------------------|----------------------|-----------------|-----------------------|
| .00                                | 8                    | 13.3            | 13.3                  |
| 2.63                               | 1                    | 1.7             | 15.0                  |
| 2.78                               | 1                    | 1.7             | 16.7                  |
| 3.33                               | 1                    | 1.7             | 18.3                  |
| 3.57                               | 1                    | 1.7             | 20.0                  |
| 3.85                               | 1                    | 1.7             | 21.7                  |
| 4.00                               | 2                    | 3.3             | 25.0                  |
| 4.17                               | 1                    | 1.7             | 26.7                  |
| 4.55                               | 2                    | 3.3             | 30.0                  |
| 5.00                               | 2                    | 3.3             | 33.3                  |
| 5.26                               | 1                    | 1.7             | 35.0                  |
| 6.25                               | 2                    | 3.3             | 38.3                  |
| 6.67                               | 1                    | 1.7             | 40.0                  |
| 7.14                               | 3                    | 5.0             | 45.0                  |
| 8.00                               | 3                    | 5.0             | 50.0                  |
| 8.33                               | 2                    | 3.3             | 53.3                  |
| 8.70                               | 1                    | 1.7             | 55.0                  |
| 9.09                               | 1                    | 1.7             | 56.7                  |
| 9.76                               | 1                    | 1.7             | 58.3                  |
| 10.00                              | 1                    | 1.7             | 60.0                  |
| 10.53                              | 2                    | 3.3             | 63.3                  |
| 11.11                              | 2                    | 3.3             | 66.7                  |
| 12.50                              | 1                    | 1.7             | 68.3                  |
| 14.29                              | 1                    | 1.7             | 70.0                  |
| 17.39                              | 2                    | 3.3             | 73.3                  |
| 17.65                              | 3                    | 5.0             | 78.3                  |
| 18.18                              | 1                    | 1.7             | 80.0                  |
| 19.05                              | 1                    | 1.7             | 81.7                  |
| 19.23                              | 1                    | 1.7             | 83.3                  |
| 20.00                              | 1                    | 1.7             | 85.0                  |
| 21.74                              | 1                    | 1.7             | 86.7                  |
| 22.73                              | 1                    | 1.7             | 88.3                  |
| 23.53                              | 1                    | 1.7             | 90.0                  |
| 26.32                              | 2                    | 3.3             | 93.3                  |
| 31.58                              | 1                    | 1.7             | 95.0                  |
| 31.82                              | 1                    | 1.7             | 96.7                  |
| 33.33                              | 1                    | 1.7             | 98.3                  |
| 50.00                              | 1                    | 1.7             | 100.0                 |
| -----                              |                      |                 |                       |
| TOTAL                              | 60                   | 100.0           |                       |

|          |        |          |         |          |         |
|----------|--------|----------|---------|----------|---------|
| MEAN     | 11.218 | STD ERR  | 1.303   | MEDIAN   | 8.167   |
| MODE     | .000   | STD DEV  | 10.093  | VARIANCE | 101.875 |
| KURTOSIS | 2.628  | S E KURT | .608    | SKEWNESS | 1.434   |
| S E SKEW | .309   | RANGE    | 50.000  | MINIMUM  | .000    |
| MAXIMUM  | 50.000 | SUM      | 673.088 |          |         |

VALUE -- HOMEWORK

| % OF STUDENTS<br>NEEDING FOLLOW UP | NUMBER OF<br>CLASSES | % OF<br>CLASSES | CUMULATIVE<br>PERCENT |
|------------------------------------|----------------------|-----------------|-----------------------|
|------------------------------------|----------------------|-----------------|-----------------------|

|       |   |      |       |
|-------|---|------|-------|
| .00   | 6 | 10.0 | 10.0  |
| 3.70  | 1 | 1.7  | 11.7  |
| 4.00  | 1 | 1.7  | 13.3  |
| 4.55  | 1 | 1.7  | 15.0  |
| 4.88  | 1 | 1.7  | 16.7  |
| 5.26  | 2 | 3.3  | 20.0  |
| 5.88  | 1 | 1.7  | 21.7  |
| 6.67  | 2 | 3.3  | 25.0  |
| 6.90  | 1 | 1.7  | 26.7  |
| 7.14  | 1 | 1.7  | 28.3  |
| 8.00  | 1 | 1.7  | 30.0  |
| 8.70  | 1 | 1.7  | 31.7  |
| 9.52  | 1 | 1.7  | 33.3  |
| 10.71 | 2 | 3.3  | 36.7  |
| 11.54 | 1 | 1.7  | 38.3  |
| 12.00 | 2 | 3.3  | 41.7  |
| 12.50 | 2 | 3.3  | 45.0  |
| 13.64 | 1 | 1.7  | 46.7  |
| 13.89 | 1 | 1.7  | 48.3  |
| 14.29 | 2 | 3.3  | 51.7  |
| 15.00 | 1 | 1.7  | 53.3  |
| 16.00 | 1 | 1.7  | 55.0  |
| 16.67 | 1 | 1.7  | 56.7  |
| 17.39 | 2 | 3.3  | 60.0  |
| 17.65 | 1 | 1.7  | 61.7  |
| 18.18 | 3 | 5.0  | 66.7  |
| 18.42 | 1 | 1.7  | 68.3  |
| 18.75 | 1 | 1.7  | 70.0  |
| 19.05 | 1 | 1.7  | 71.7  |
| 20.00 | 1 | 1.7  | 73.3  |
| 20.83 | 2 | 3.3  | 76.7  |
| 21.05 | 1 | 1.7  | 78.3  |
| 22.22 | 1 | 1.7  | 80.0  |
| 22.73 | 2 | 3.3  | 83.3  |
| 23.08 | 1 | 1.7  | 85.0  |
| 23.53 | 1 | 1.7  | 86.7  |
| 25.00 | 2 | 3.3  | 90.0  |
| 29.41 | 1 | 1.7  | 91.7  |
| 29.63 | 1 | 1.7  | 93.3  |
| 30.43 | 1 | 1.7  | 95.0  |
| 31.58 | 2 | 3.3  | 98.3  |
| 37.50 | 1 | 1.7  | 100.0 |

|       |    |       |
|-------|----|-------|
| TOTAL | 60 | 100.0 |
|-------|----|-------|

|          |        |          |         |          |        |
|----------|--------|----------|---------|----------|--------|
| MEAN     | 14.553 | STD ERR  | 1.187   | MEDIAN   | 14.286 |
| MODE     | .000   | STD DEV  | 9.196   | VARIANCE | 84.566 |
| KURTOSIS | -.488  | S E KURT | .608    | SKEWNESS | .259   |
| S E SKEW | .309   | RANGE    | 37.500  | MINIMUM  | .000   |
| MAXIMUM  | 37.500 | SUM      | 873.189 |          |        |

# INTEREST -- HOMEWORK

| % OF STUDENTS<br>NEEDING FOLLOW UP | NUMBER OF<br>CLASSES | % OF<br>CLASSES | CUMULATIVE<br>PERCENT |
|------------------------------------|----------------------|-----------------|-----------------------|
|------------------------------------|----------------------|-----------------|-----------------------|

|       |   |     |       |
|-------|---|-----|-------|
| 13.33 | 1 | 1.7 | 1.7   |
| 17.65 | 2 | 3.3 | 5.0   |
| 18.75 | 1 | 1.7 | 6.7   |
| 21.05 | 1 | 1.7 | 8.3   |
| 22.73 | 3 | 5.0 | 13.3  |
| 24.00 | 2 | 3.3 | 16.7  |
| 26.32 | 1 | 1.7 | 18.3  |
| 29.41 | 2 | 3.3 | 21.7  |
| 30.00 | 1 | 1.7 | 23.3  |
| 31.58 | 1 | 1.7 | 25.0  |
| 31.71 | 1 | 1.7 | 26.7  |
| 33.33 | 3 | 5.0 | 31.7  |
| 34.78 | 1 | 1.7 | 33.3  |
| 35.00 | 1 | 1.7 | 35.0  |
| 36.00 | 2 | 3.3 | 38.3  |
| 36.11 | 1 | 1.7 | 40.0  |
| 36.36 | 1 | 1.7 | 41.7  |
| 36.67 | 1 | 1.7 | 43.3  |
| 37.50 | 3 | 5.0 | 48.3  |
| 38.10 | 1 | 1.7 | 50.0  |
| 39.13 | 2 | 3.3 | 53.3  |
| 39.29 | 1 | 1.7 | 55.0  |
| 40.00 | 3 | 5.0 | 60.0  |
| 40.74 | 1 | 1.7 | 61.7  |
| 41.18 | 1 | 1.7 | 63.3  |
| 41.38 | 1 | 1.7 | 65.0  |
| 42.86 | 3 | 5.0 | 70.0  |
| 43.75 | 1 | 1.7 | 71.7  |
| 45.00 | 1 | 1.7 | 73.3  |
| 45.45 | 2 | 3.3 | 76.7  |
| 45.83 | 1 | 1.7 | 78.3  |
| 47.37 | 1 | 1.7 | 80.0  |
| 48.00 | 1 | 1.7 | 81.7  |
| 48.15 | 1 | 1.7 | 83.3  |
| 52.17 | 1 | 1.7 | 85.0  |
| 52.63 | 1 | 1.7 | 86.7  |
| 53.85 | 1 | 1.7 | 88.3  |
| 54.17 | 1 | 1.7 | 90.0  |
| 54.55 | 1 | 1.7 | 91.7  |
| 60.71 | 1 | 1.7 | 93.3  |
| 61.54 | 1 | 1.7 | 95.0  |
| 63.16 | 1 | 1.7 | 96.7  |
| 68.42 | 1 | 1.7 | 98.3  |
| 79.17 | 1 | 1.7 | 100.0 |

|       |    |       |
|-------|----|-------|
| TOTAL | 60 | 100.0 |
|-------|----|-------|

|          |        |          |          |          |         |
|----------|--------|----------|----------|----------|---------|
| MEAN     | 39.056 | STD ERR  | 1.667    | MEDIAN   | 38.613  |
| MODE     | 22.727 | STD DEV  | 12.911   | VARIANCE | 166.703 |
| KURTOSIS | .826   | S E KURT | .608     | SKEWNESS | .545    |
| S E SKEW | .309   | RANGE    | 65.833   | MINIMUM  | 13.333  |
| MAXIMUM  | 79.167 | SUM      | 2343.342 |          |         |

CONFIDENCE -- HOMEWORK

| % OF STUDENTS<br>NEEDING FOLLOW UP | NUMBER OF<br>CLASSES | % OF<br>CLASSES | CUMULATIVE<br>PERCENT |
|------------------------------------|----------------------|-----------------|-----------------------|
|------------------------------------|----------------------|-----------------|-----------------------|

|       |   |      |       |
|-------|---|------|-------|
| .00   | 9 | 15.0 | 15.0  |
| 2.78  | 1 | 1.7  | 16.7  |
| 3.57  | 1 | 1.7  | 18.3  |
| 3.70  | 1 | 1.7  | 20.0  |
| 4.00  | 3 | 5.0  | 25.0  |
| 4.17  | 3 | 5.0  | 30.0  |
| 4.35  | 2 | 3.3  | 33.3  |
| 4.55  | 1 | 1.7  | 35.0  |
| 5.00  | 1 | 1.7  | 36.7  |
| 5.26  | 2 | 3.3  | 40.0  |
| 5.88  | 3 | 5.0  | 45.0  |
| 6.67  | 1 | 1.7  | 46.7  |
| 7.14  | 1 | 1.7  | 48.3  |
| 7.32  | 1 | 1.7  | 50.0  |
| 7.41  | 1 | 1.7  | 51.7  |
| 7.69  | 1 | 1.7  | 53.3  |
| 8.00  | 1 | 1.7  | 55.0  |
| 8.33  | 1 | 1.7  | 56.7  |
| 9.09  | 2 | 3.3  | 60.0  |
| 10.00 | 1 | 1.7  | 61.7  |
| 10.53 | 4 | 6.7  | 68.3  |
| 12.00 | 1 | 1.7  | 70.0  |
| 12.50 | 4 | 6.7  | 76.7  |
| 13.33 | 1 | 1.7  | 78.3  |
| 13.64 | 2 | 3.3  | 81.7  |
| 13.79 | 1 | 1.7  | 83.3  |
| 14.29 | 1 | 1.7  | 85.0  |
| 14.81 | 1 | 1.7  | 86.7  |
| 15.79 | 1 | 1.7  | 88.3  |
| 17.86 | 1 | 1.7  | 90.0  |
| 18.18 | 1 | 1.7  | 91.7  |
| 21.74 | 1 | 1.7  | 93.3  |
| 22.73 | 1 | 1.7  | 95.0  |
| 23.08 | 1 | 1.7  | 96.7  |
| 23.53 | 1 | 1.7  | 98.3  |
| 25.00 | 1 | 1.7  | 100.0 |

|       |       |       |
|-------|-------|-------|
|       | ----- | ----- |
| TOTAL | 60    | 100.0 |

|          |        |          |         |          |        |
|----------|--------|----------|---------|----------|--------|
| MEAN     | 8.620  | STD ERR  | .850    | MEDIAN   | 7.362  |
| MODE     | .000   | STD DEV  | 6.581   | VARIANCE | 43.305 |
| KURTOSIS | -.008  | S E KURT | .608    | SKEWNESS | .729   |
| S E SKEW | .309   | RANGE    | 25.000  | MINIMUM  | .000   |
| MAXIMUM  | 25.000 | SUM      | 517.215 |          |        |

# ANXIETY -- HOMEWORK

| % OF STUDENTS<br>NEEDING FOLLOW UP | NUMBER OF<br>CLASSES | % OF<br>CLASSES | CUMULATIVE<br>PERCENT |
|------------------------------------|----------------------|-----------------|-----------------------|
| .00                                | 6                    | 10.0            | 10.0                  |
| 3.33                               | 1                    | 1.7             | 11.7                  |
| 3.57                               | 1                    | 1.7             | 13.3                  |
| 3.70                               | 1                    | 1.7             | 15.0                  |
| 3.85                               | 1                    | 1.7             | 16.7                  |
| 4.00                               | 1                    | 1.7             | 18.3                  |
| 4.17                               | 4                    | 6.7             | 25.0                  |
| 4.35                               | 1                    | 1.7             | 26.7                  |
| 4.76                               | 2                    | 3.3             | 30.0                  |
| 5.00                               | 1                    | 1.7             | 31.7                  |
| 5.26                               | 1                    | 1.7             | 33.3                  |
| 6.25                               | 1                    | 1.7             | 35.0                  |
| 7.41                               | 1                    | 1.7             | 36.7                  |
| 8.70                               | 1                    | 1.7             | 38.3                  |
| 9.09                               | 1                    | 1.7             | 40.0                  |
| 9.52                               | 1                    | 1.7             | 41.7                  |
| 10.53                              | 2                    | 3.3             | 45.0                  |
| 10.71                              | 1                    | 1.7             | 46.7                  |
| 11.76                              | 2                    | 3.3             | 50.0                  |
| 13.04                              | 1                    | 1.7             | 51.7                  |
| 13.33                              | 2                    | 3.3             | 55.0                  |
| 13.64                              | 1                    | 1.7             | 56.7                  |
| 14.29                              | 1                    | 1.7             | 58.3                  |
| 15.00                              | 2                    | 3.3             | 61.7                  |
| 15.79                              | 3                    | 5.0             | 66.7                  |
| 16.00                              | 1                    | 1.7             | 68.3                  |
| 16.67                              | 2                    | 3.3             | 71.7                  |
| 18.18                              | 2                    | 3.3             | 75.0                  |
| 18.52                              | 1                    | 1.7             | 76.7                  |
| 18.75                              | 2                    | 3.3             | 80.0                  |
| 19.51                              | 1                    | 1.7             | 81.7                  |
| 20.00                              | 1                    | 1.7             | 83.3                  |
| 21.43                              | 1                    | 1.7             | 85.0                  |
| 21.74                              | 1                    | 1.7             | 86.7                  |
| 24.00                              | 1                    | 1.7             | 88.3                  |
| 24.14                              | 1                    | 1.7             | 90.0                  |
| 26.32                              | 1                    | 1.7             | 91.7                  |
| 26.92                              | 1                    | 1.7             | 93.3                  |
| 29.41                              | 2                    | 3.3             | 96.7                  |
| 31.82                              | 2                    | 3.3             | 100.0                 |

|       |    |       |
|-------|----|-------|
| TOTAL | 60 | 100.0 |
|-------|----|-------|

|          |        |          |         |          |        |
|----------|--------|----------|---------|----------|--------|
| MEAN     | 12.479 | STD ERR  | 1.133   | MEDIAN   | 12.404 |
| MODE     | .000   | STD DEV  | 8.775   | VARIANCE | 76.998 |
| KURTOSIS | -.620  | S E KURT | .608    | SKEWNESS | .429   |
| S E SKEW | .309   | RANGE    | 31.818  | MINIMUM  | .000   |
| MAXIMUM  | 31.818 | SUM      | 748.753 |          |        |

# INTERNAL LEARNING GOALS -- HOMEWORK

| % OF STUDENTS<br>NEEDING FOLLOW UP | NUMBER OF<br>CLASSES | % OF<br>CLASSES | CUMULATIVE<br>PERCENT |
|------------------------------------|----------------------|-----------------|-----------------------|
|------------------------------------|----------------------|-----------------|-----------------------|

|       |   |     |       |
|-------|---|-----|-------|
| 4.55  | 1 | 1.7 | 1.7   |
| 5.00  | 1 | 1.7 | 3.3   |
| 5.26  | 1 | 1.7 | 5.0   |
| 5.88  | 1 | 1.7 | 6.7   |
| 6.25  | 1 | 1.7 | 8.3   |
| 6.67  | 1 | 1.7 | 10.0  |
| 8.33  | 1 | 1.7 | 11.7  |
| 8.70  | 1 | 1.7 | 13.3  |
| 10.00 | 2 | 3.3 | 16.7  |
| 11.76 | 3 | 5.0 | 21.7  |
| 12.00 | 1 | 1.7 | 23.3  |
| 12.20 | 1 | 1.7 | 25.0  |
| 13.64 | 2 | 3.3 | 28.3  |
| 14.29 | 2 | 3.3 | 31.7  |
| 15.79 | 3 | 5.0 | 36.7  |
| 16.00 | 1 | 1.7 | 38.3  |
| 16.67 | 1 | 1.7 | 40.0  |
| 17.39 | 1 | 1.7 | 41.7  |
| 17.65 | 1 | 1.7 | 43.3  |
| 18.18 | 1 | 1.7 | 45.0  |
| 18.52 | 1 | 1.7 | 46.7  |
| 19.44 | 1 | 1.7 | 48.3  |
| 20.00 | 2 | 3.3 | 51.7  |
| 21.43 | 1 | 1.7 | 53.3  |
| 22.22 | 1 | 1.7 | 55.0  |
| 22.73 | 2 | 3.3 | 58.3  |
| 23.81 | 2 | 3.3 | 61.7  |
| 24.00 | 2 | 3.3 | 65.0  |
| 25.00 | 2 | 3.3 | 68.3  |
| 26.09 | 1 | 1.7 | 70.0  |
| 26.67 | 1 | 1.7 | 71.7  |
| 27.27 | 1 | 1.7 | 73.3  |
| 27.59 | 1 | 1.7 | 75.0  |
| 28.00 | 1 | 1.7 | 76.7  |
| 30.77 | 1 | 1.7 | 78.3  |
| 31.25 | 2 | 3.3 | 81.7  |
| 33.33 | 2 | 3.3 | 85.0  |
| 34.21 | 1 | 1.7 | 86.7  |
| 35.00 | 1 | 1.7 | 88.3  |
| 35.71 | 1 | 1.7 | 90.0  |
| 36.84 | 1 | 1.7 | 91.7  |
| 37.50 | 1 | 1.7 | 93.3  |
| 42.11 | 1 | 1.7 | 95.0  |
| 43.48 | 1 | 1.7 | 96.7  |
| 45.83 | 1 | 1.7 | 98.3  |
| 46.15 | 1 | 1.7 | 100.0 |

|       |    |       |
|-------|----|-------|
| TOTAL | 60 | 100.0 |
|-------|----|-------|

|          |        |          |          |          |         |
|----------|--------|----------|----------|----------|---------|
| MEAN     | 21.405 | STD ERR  | 1.400    | MEDIAN   | 20.000  |
| MODE     | 11.765 | STD DEV  | 10.841   | VARIANCE | 117.530 |
| KURTOSIS | -.471  | S E KURT | .608     | SKEWNESS | .468    |
| S E SKEW | .309   | RANGE    | 41.608   | MINIMUM  | 4.545   |
| MAXIMUM  | 46.154 | SUM      | 1284.299 |          |         |

# EXTERNAL PERFORMANCE GOALS -- HOMEWORK

| % OF STUDENTS<br>NEEDING FOLLOW UP | NUMBER OF<br>CLASSES | % OF<br>CLASSES | CUMULATIVE<br>PERCENT |
|------------------------------------|----------------------|-----------------|-----------------------|
|------------------------------------|----------------------|-----------------|-----------------------|

|       |   |     |       |
|-------|---|-----|-------|
| 11.76 | 1 | 1.7 | 1.7   |
| 13.64 | 1 | 1.7 | 3.3   |
| 15.79 | 1 | 1.7 | 5.0   |
| 17.65 | 1 | 1.7 | 6.7   |
| 21.43 | 1 | 1.7 | 8.3   |
| 22.22 | 1 | 1.7 | 10.0  |
| 25.00 | 1 | 1.7 | 11.7  |
| 26.32 | 2 | 3.3 | 15.0  |
| 30.00 | 1 | 1.7 | 16.7  |
| 31.71 | 1 | 1.7 | 18.3  |
| 33.33 | 3 | 5.0 | 23.3  |
| 35.00 | 1 | 1.7 | 25.0  |
| 35.71 | 1 | 1.7 | 26.7  |
| 36.36 | 1 | 1.7 | 28.3  |
| 37.50 | 1 | 1.7 | 30.0  |
| 38.10 | 2 | 3.3 | 33.3  |
| 38.46 | 2 | 3.3 | 36.7  |
| 40.00 | 2 | 3.3 | 40.0  |
| 40.91 | 2 | 3.3 | 43.3  |
| 41.18 | 1 | 1.7 | 45.0  |
| 41.67 | 2 | 3.3 | 48.3  |
| 42.11 | 1 | 1.7 | 50.0  |
| 43.48 | 2 | 3.3 | 53.3  |
| 44.00 | 1 | 1.7 | 55.0  |
| 44.44 | 1 | 1.7 | 56.7  |
| 44.83 | 1 | 1.7 | 58.3  |
| 45.00 | 1 | 1.7 | 60.0  |
| 45.45 | 1 | 1.7 | 61.7  |
| 45.83 | 3 | 5.0 | 66.7  |
| 46.43 | 1 | 1.7 | 68.3  |
| 47.37 | 2 | 3.3 | 71.7  |
| 47.62 | 1 | 1.7 | 73.3  |
| 47.83 | 2 | 3.3 | 76.7  |
| 48.00 | 2 | 3.3 | 80.0  |
| 50.00 | 3 | 5.0 | 85.0  |
| 52.00 | 1 | 1.7 | 86.7  |
| 52.63 | 1 | 1.7 | 88.3  |
| 52.94 | 2 | 3.3 | 91.7  |
| 54.17 | 1 | 1.7 | 93.3  |
| 54.55 | 1 | 1.7 | 95.0  |
| 55.56 | 1 | 1.7 | 96.7  |
| 56.25 | 1 | 1.7 | 98.3  |
| 62.50 | 1 | 1.7 | 100.0 |

|       |    |       |
|-------|----|-------|
| TOTAL | 60 | 100.0 |
|-------|----|-------|

|          |        |          |          |          |         |
|----------|--------|----------|----------|----------|---------|
| MEAN     | 40.668 | STD ERR  | 1.432    | MEDIAN   | 42.792  |
| MODE     | 33.333 | STD DEV  | 11.095   | VARIANCE | 123.107 |
| KURTOSIS | .379   | S E KURT | .608     | SKEWNESS | -.807   |
| S E SKEW | .309   | RANGE    | 50.735   | MINIMUM  | 11.765  |
| MAXIMUM  | 62.500 | SUM      | 2440.103 |          |         |

# INTERNAL STABLE CONTROLLABLE - HOMEWORK

| % OF STUDENTS<br>NEEDING FOLLOW UP | NUMBER OF<br>CLASSES | % OF<br>CLASSES | CUMULATIVE<br>PERCENT |        |
|------------------------------------|----------------------|-----------------|-----------------------|--------|
| .00                                | 9                    | 15.0            | 15.0                  |        |
| 2.44                               | 1                    | 1.7             | 16.7                  |        |
| 3.70                               | 1                    | 1.7             | 18.3                  |        |
| 4.00                               | 1                    | 1.7             | 20.0                  |        |
| 4.35                               | 2                    | 3.3             | 23.3                  |        |
| 5.00                               | 1                    | 1.7             | 25.0                  |        |
| 5.26                               | 1                    | 1.7             | 26.7                  |        |
| 5.56                               | 1                    | 1.7             | 28.3                  |        |
| 5.88                               | 2                    | 3.3             | 31.7                  |        |
| 6.67                               | 2                    | 3.3             | 35.0                  |        |
| 7.69                               | 1                    | 1.7             | 36.7                  |        |
| 8.00                               | 1                    | 1.7             | 38.3                  |        |
| 8.33                               | 2                    | 3.3             | 41.7                  |        |
| 8.70                               | 1                    | 1.7             | 43.3                  |        |
| 9.09                               | 2                    | 3.3             | 46.7                  |        |
| 9.52                               | 1                    | 1.7             | 48.3                  |        |
| 10.53                              | 1                    | 1.7             | 50.0                  |        |
| 10.71                              | 1                    | 1.7             | 51.7                  |        |
| 11.76                              | 1                    | 1.7             | 53.3                  |        |
| 12.50                              | 4                    | 6.7             | 60.0                  |        |
| 13.04                              | 1                    | 1.7             | 61.7                  |        |
| 13.64                              | 3                    | 5.0             | 66.7                  |        |
| 14.29                              | 2                    | 3.3             | 70.0                  |        |
| 15.00                              | 1                    | 1.7             | 71.7                  |        |
| 15.38                              | 1                    | 1.7             | 73.3                  |        |
| 15.79                              | 4                    | 6.7             | 80.0                  |        |
| 16.00                              | 1                    | 1.7             | 81.7                  |        |
| 17.24                              | 1                    | 1.7             | 83.3                  |        |
| 17.65                              | 1                    | 1.7             | 85.0                  |        |
| 17.86                              | 1                    | 1.7             | 86.7                  |        |
| 18.18                              | 1                    | 1.7             | 88.3                  |        |
| 18.75                              | 1                    | 1.7             | 90.0                  |        |
| 20.00                              | 1                    | 1.7             | 91.7                  |        |
| 22.22                              | 1                    | 1.7             | 93.3                  |        |
| 22.73                              | 1                    | 1.7             | 95.0                  |        |
| 25.00                              | 1                    | 1.7             | 96.7                  |        |
| 25.93                              | 1                    | 1.7             | 98.3                  |        |
| 31.58                              | 1                    | 1.7             | 100.0                 |        |
| -----                              |                      | -----           |                       |        |
| TOTAL                              | 60                   | 100.0           |                       |        |
| 10.679                             | STD ERR              | .954            | MEDIAN                | 10.620 |
| .000                               | STD DEV              | 7.389           | VARIANCE              | 54.598 |
| -.098                              | S E KURT             | .608            | SKEWNESS              | .398   |
| .309                               | RANGE                | 31.579          | MINIMUM               | .000   |
| 31.579                             | SUM                  | 640.719         |                       |        |

## EXTERNAL STABLE UNCONTROLLABLE -- HOMEWORK

| % OF STUDENTS<br>NEEDING FOLLOW UP | NUMBER OF<br>CLASSES | % OF<br>CLASSES | CUMULATIVE<br>PERCENT |
|------------------------------------|----------------------|-----------------|-----------------------|
|------------------------------------|----------------------|-----------------|-----------------------|

|       |   |     |       |
|-------|---|-----|-------|
| .00   | 2 | 3.3 | 3.3   |
| 4.00  | 2 | 3.3 | 6.7   |
| 4.17  | 1 | 1.7 | 8.3   |
| 5.00  | 1 | 1.7 | 10.0  |
| 7.41  | 1 | 1.7 | 11.7  |
| 8.33  | 1 | 1.7 | 13.3  |
| 8.70  | 1 | 1.7 | 15.0  |
| 9.09  | 1 | 1.7 | 16.7  |
| 9.52  | 1 | 1.7 | 18.3  |
| 10.00 | 1 | 1.7 | 20.0  |
| 10.53 | 1 | 1.7 | 21.7  |
| 10.71 | 2 | 3.3 | 25.0  |
| 11.76 | 2 | 3.3 | 28.3  |
| 12.00 | 2 | 3.3 | 31.7  |
| 13.04 | 1 | 1.7 | 33.3  |
| 13.16 | 1 | 1.7 | 35.0  |
| 13.33 | 1 | 1.7 | 36.7  |
| 13.64 | 2 | 3.3 | 40.0  |
| 13.79 | 1 | 1.7 | 41.7  |
| 14.29 | 1 | 1.7 | 43.3  |
| 14.81 | 2 | 3.3 | 46.7  |
| 15.00 | 2 | 3.3 | 50.0  |
| 15.38 | 1 | 1.7 | 51.7  |
| 15.79 | 1 | 1.7 | 53.3  |
| 16.00 | 2 | 3.3 | 56.7  |
| 16.67 | 2 | 3.3 | 60.0  |
| 17.07 | 1 | 1.7 | 61.7  |
| 17.39 | 1 | 1.7 | 63.3  |
| 17.86 | 1 | 1.7 | 65.0  |
| 18.75 | 2 | 3.3 | 68.3  |
| 19.05 | 1 | 1.7 | 70.0  |
| 20.00 | 2 | 3.3 | 73.3  |
| 20.83 | 1 | 1.7 | 75.0  |
| 21.05 | 1 | 1.7 | 76.7  |
| 21.74 | 1 | 1.7 | 78.3  |
| 23.08 | 1 | 1.7 | 80.0  |
| 23.81 | 1 | 1.7 | 81.7  |
| 25.00 | 1 | 1.7 | 83.3  |
| 26.32 | 2 | 3.3 | 86.7  |
| 27.27 | 1 | 1.7 | 88.3  |
| 29.41 | 1 | 1.7 | 90.0  |
| 31.58 | 1 | 1.7 | 91.7  |
| 35.29 | 1 | 1.7 | 93.3  |
| 36.36 | 2 | 3.3 | 96.7  |
| 40.91 | 1 | 1.7 | 98.3  |
| 56.25 | 1 | 1.7 | 100.0 |

|       |    |       |
|-------|----|-------|
| TOTAL | 60 | 100.0 |
|-------|----|-------|

|          |        |          |          |          |         |
|----------|--------|----------|----------|----------|---------|
| MEAN     | 17.186 | STD ERR  | 1.305    | MEDIAN   | 15.192  |
| MODE     | .000   | STD DEV  | 10.112   | VARIANCE | 102.245 |
| KURTOSIS | 3.029  | S E KURT | .608     | SKEWNESS | 1.313   |
| S E SKEW | .309   | RANGE    | 56.250   | MINIMUM  | .000    |
| MAXIMUM  | 56.250 | SUM      | 1031.182 |          |         |

UNKNOWN CONTROL -- HOMEWORK

| % OF STUDENTS<br>NEEDING FOLLOW UP | NUMBER OF<br>CLASSES | % OF<br>CLASSES | CUMULATIVE<br>PERCENT |
|------------------------------------|----------------------|-----------------|-----------------------|
| .00                                | 5                    | 8.3             | 8.3                   |
| 2.63                               | 1                    | 1.7             | 10.0                  |
| 4.76                               | 2                    | 3.3             | 13.3                  |
| 5.00                               | 1                    | 1.7             | 15.0                  |
| 5.26                               | 1                    | 1.7             | 16.7                  |
| 5.56                               | 1                    | 1.7             | 18.3                  |
| 6.67                               | 3                    | 5.0             | 23.3                  |
| 7.14                               | 4                    | 6.7             | 30.0                  |
| 7.41                               | 2                    | 3.3             | 33.3                  |
| 8.00                               | 2                    | 3.3             | 36.7                  |
| 8.33                               | 1                    | 1.7             | 38.3                  |
| 10.00                              | 2                    | 3.3             | 41.7                  |
| 10.34                              | 1                    | 1.7             | 43.3                  |
| 10.53                              | 1                    | 1.7             | 45.0                  |
| 11.54                              | 1                    | 1.7             | 46.7                  |
| 11.76                              | 1                    | 1.7             | 48.3                  |
| 12.00                              | 1                    | 1.7             | 50.0                  |
| 12.50                              | 4                    | 6.7             | 56.7                  |
| 13.64                              | 1                    | 1.7             | 58.3                  |
| 14.63                              | 1                    | 1.7             | 60.0                  |
| 14.81                              | 1                    | 1.7             | 61.7                  |
| 15.38                              | 1                    | 1.7             | 63.3                  |
| 15.79                              | 1                    | 1.7             | 65.0                  |
| 16.00                              | 1                    | 1.7             | 66.7                  |
| 16.67                              | 2                    | 3.3             | 70.0                  |
| 17.39                              | 3                    | 5.0             | 75.0                  |
| 17.65                              | 2                    | 3.3             | 78.3                  |
| 18.18                              | 3                    | 5.0             | 83.3                  |
| 19.05                              | 1                    | 1.7             | 85.0                  |
| 21.05                              | 1                    | 1.7             | 86.7                  |
| 21.74                              | 1                    | 1.7             | 88.3                  |
| 22.73                              | 2                    | 3.3             | 91.7                  |
| 23.53                              | 1                    | 1.7             | 93.3                  |
| 31.58                              | 1                    | 1.7             | 95.0                  |
| 36.36                              | 1                    | 1.7             | 96.7                  |
| 37.50                              | 1                    | 1.7             | 98.3                  |
| 42.11                              | 1                    | 1.7             | 100.0                 |
| -----                              |                      |                 |                       |
| TOTAL                              | 60                   | 100.0           |                       |

|          |        |          |         |          |        |
|----------|--------|----------|---------|----------|--------|
| MEAN     | 13.097 | STD ERR  | 1.158   | MEDIAN   | 12.250 |
| MODE     | .000   | STD DEV  | 8.972   | VARIANCE | 80.496 |
| KURTOSIS | 1.796  | S E KURT | .608    | SKEWNESS | 1.108  |
| S E SKEW | .309   | RANGE    | 42.105  | MINIMUM  | .000   |
| MAXIMUM  | 42.105 | SUM      | 785.845 |          |        |